



**DRAFT ENVIRONMENTAL IMPACT REPORT**

# CHINA BASIN LANDING EXPANSION PROJECT

San Francisco Planning Department

98.28IE

DRAFT EIR PUBLICATION DATE: NOVEMBER 6, 1999

DRAFT EIR PUBLIC HEARING DATE: DECEMBER 9, 1999

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DATE: November 6, 1999

TO: Distribution List for the China Basin Landing Expansion Project Draft EIR

FROM: Hillary Gitelman, Environmental Review Officer

SUBJECT: Request for the Final Environmental Impact Report for the China Basin Landing Expansion Project (Planning Department File No. 98.281E)

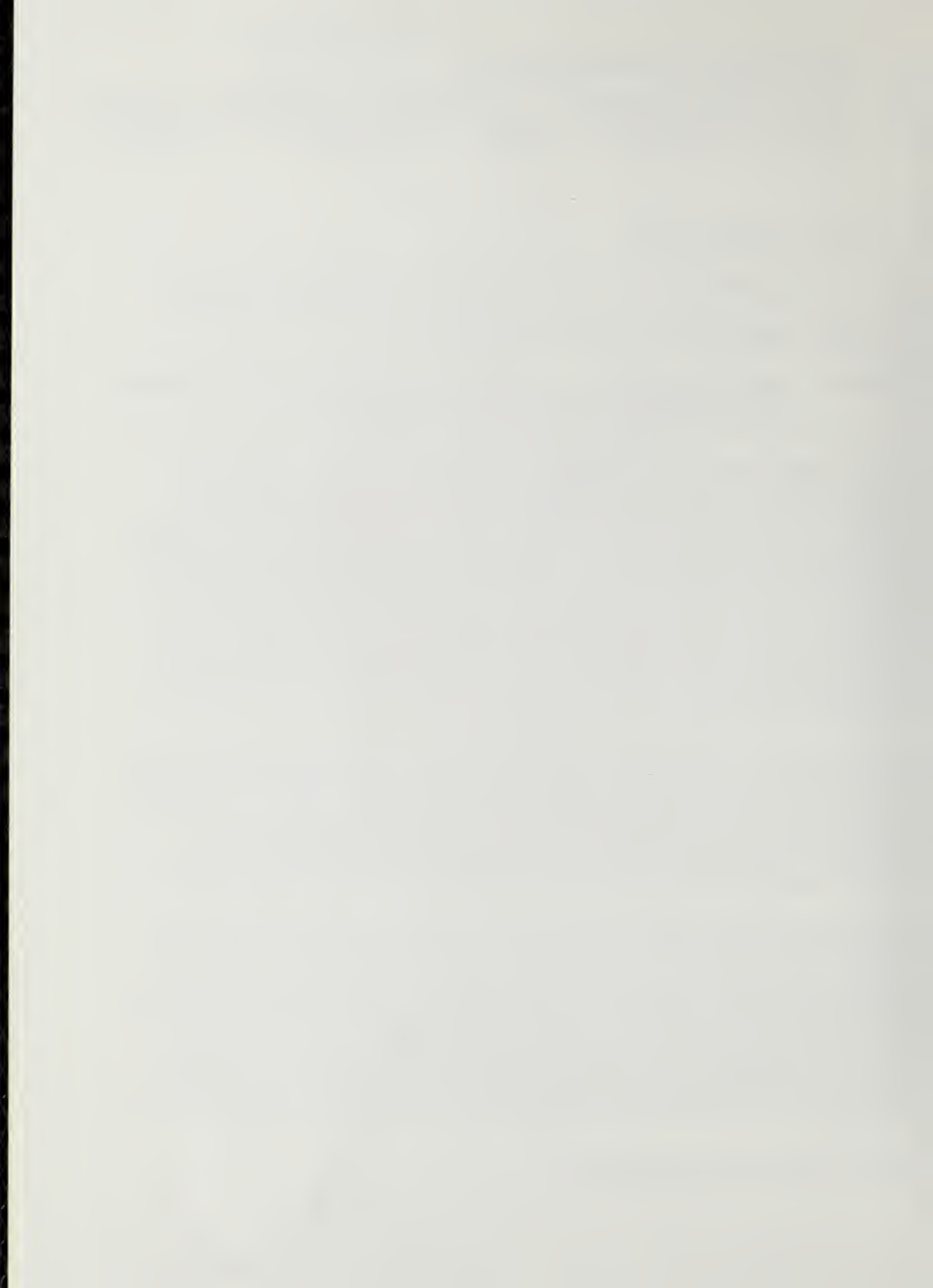
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This is the Draft of the Environmental Impact Report (EIR) for the China Basin Landing Expansion Project. A public hearing will be held on the adequacy and accuracy of this document. After the public hearing, our office will prepare and publish a document titled "Summary of Comments and Responses" that will contain a summary of all relevant comments on this Draft EIR and our responses to those comments. It may also specify changes to this Draft EIR. Those who testify at the hearing on the Draft EIR will automatically receive a copy of the Comments and Responses document, along with notice of the date reserved for certification; others may receive such copies and notice on request or by visiting our office. This Draft EIR together with the Summary of Comments and Responses document will be considered by the City Planning Commission in an advertised public meeting and certified as a Final EIR if deemed adequate.

After certification, we will modify the Draft EIR as specified by the Comments and Responses document and print both documents in a single publication called the Final EIR. The Final EIR will add no new information to the combination of the two documents except to reproduce the certification resolution. It will simply provide the information in one, rather than two, documents. Therefore, if you receive a copy of the Comments and Responses document in addition to this copy of the Draft EIR, you will technically have a copy of the Final EIR.

We are aware that many people who receive the Draft EIR and Summary of Comments and Responses have no interest in receiving virtually the same information after the EIR has been certified. To avoid expending money and paper needlessly, we would like to send copies of the Final EIR to private individuals only if they request them. If you would like a copy of the Final EIR, therefore, please fill out and mail the postcard provided inside the back cover to the Major Environmental Analysis Office of the Planning Department within two weeks after certification of the EIR. Any private party not requesting a Final EIR by that time will not be mailed a copy. Public agencies on the distribution list will automatically receive a copy of the Final EIR.

Thank you for your interest in this project.







## DRAFT ENVIRONMENTAL IMPACT REPORT

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# **I. SUMMARY**

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## **A. PROJECT DESCRIPTION**

The proposed project is a three-story expansion (193,600 gross square foot [gsf] addition) of one building in the existing China Basin Landing office complex. China Basin Landing is located south of Berry Street, between Third and Fourth Streets in the South Beach/China Basin area of San Francisco. It is comprised of two buildings. The Berry Building (subject of the expansion) was constructed in 1991 and contains 226,000 gsf. The Wharfside Building was constructed in 1922 originally as a warehouse and gradually converted into office beginning in the 1970's. The Wharfside Building is six stories tall and contains 450,000 gsf. Between the Berry and Wharfside buildings is a pedestrian courtyard providing access to both buildings through several elevator lobbies. Under the courtyard is an existing one-level parking garage containing 69 parking spaces, with ingress from Third Street and egress to Fourth Street.

The project site is in the Mission Bay area, adjacent to, but outside of, the Mission Bay North Redevelopment area. The project site is on Assessor's Block 3803, Lot 5, and is approximately 225,000 square feet in size. Pacific Bell Park, the ballpark for the San Francisco Giants, is currently under construction across from the project site on Third Street.

The proposed project would add three stories to the existing Berry Building, which would rise to a height of approximately 87 feet. The existing height limit under the San Francisco Planning Code is 60 feet. Therefore, the project includes a proposed height reclassification to 90 feet. The analyses in the EIR address impacts for both the proposed office addition and the proposed height reclassification.



The China Basin complex (including the Berry and Wharfside buildings) is currently required to provide 533 off-site parking spaces within 1,500 feet of the complex in addition to the 67 on-site spaces required to be located beneath the pedestrian courtyard, under Variance Case No. 97.321V, issued in October 1997. The proposed addition of office space would increase the amount of parking required under the Planning Code by 329 spaces. No parking is proposed, which would require either approval of a new parking variance, pursuant to Code Section 305 or approval of an exception to the parking requirement pursuant to Planning Code Sections 161(l) and 307(g) if the proposed Ballpark Vicinity Special Use District Permanent Zoning Controls are adopted. The office space would require authorization by the Planning Commission under Section 321 of the Planning Code.

## **B. MAIN ENVIRONMENTAL EFFECTS**

### **LAND USE**

In the Initial Study published May 21, 1999 (Appendix A), the Planning Department determined that the project would not have a substantial adverse effect on land use and that the project would not conflict with land use plans of the City or region. The proposed addition of three more stories of office space to an existing three-story office building located next to a six-story office building, and the increase in permitted height on the project site, would intensify, but not change, the character of land use on the site.

The project would be consistent with mixed-use development in the vicinity of the site, both now and in the future. Existing uses include primarily office, light industrial, retail and recreational uses, and some residential uses. The San Francisco Giants ballpark is under construction across Third Street. The two blocks to the north of the project site include a paved parking lot. The lot to the west of the project site is vacant. On the north side of Townsend Street, two blocks to the north of the site, existing warehouse and office buildings are being renovated; live/work space is under construction at Fifth and Townsend Streets. An

apartment building is under construction at King and Second Streets, across King Street from the ballpark.

The area near the project site will become much more dense as it develops according to applicable plans, including the *San Francisco General Plan* Area Plans (Northeastern Waterfront Area Plan and the Central Waterfront Area Plan) and the San Francisco Redevelopment Agency's redevelopment plans (Rincon Point - South Beach Redevelopment Plan, the Mission Bay North Redevelopment Plan, and the Mission Bay South Redevelopment Plan). Immediately across Berry Street, in Mission Bay North, retail and residential space is planned. The proposed project's height would be moderate compared to the heights of planned surrounding development and development under construction.

## WIND

Wind-tunnel tests were conducted to simulate existing wind conditions, wind conditions with the project, and wind conditions with the project under a cumulative development scenario (see Appendix B). The analyses of the proposed building addition also addresses wind effects of the proposed height reclassification. With the project, the average wind speed for all 40 test locations would increase slightly (by 0.1 mph), but would remain less than 15 mph. The highest wind speeds would continue to occur west of the project site on Berry Street and King Street, and at the southwest corner of the Wharfside Building, on Fourth Street. The number of test locations within the Planning Code's pedestrian comfort criteria of 11 mph would increase from three to six. The five seating locations tested would continue to exceed the seating comfort criterion of 7 mph. The project would eliminate one of five existing exceedances of the 26 mph wind hazard criterion and create three new exceedances. The total duration of the exceedances would be 55 hours per year, an overall decrease of one hour per year compared to existing conditions. Because the project would not increase the duration of the hazard criterion exceedances, the wind effects of the project would not be considered significant.

Current and future development of the area to the north and west of the project site would substantially alter wind conditions in the vicinity. In the future, the Mission Bay North development, with building heights ranging from 50 feet to 160 feet, would fill the now-vacant lands to the north and west. Cumulative development would substantially reduce wind speeds. The average wind speed for all 40 locations tested would decrease from above 14.5 mph for existing conditions to 11.5 mph. The highest wind speeds would occur at the intersection of Fourth and King Streets and at the northeast corner of the Townsend and Third Streets. Compared to the project, 11 more pedestrian locations would be within the Planning Code's pedestrian-comfort criterion of 11 mph. All five seating locations would be within the seating comfort criterion. Two exceedances of the wind hazard criterion that occur under existing conditions would continue to occur, and two new exceedances would be created, one at the northwest corner of the Berry Building and one at the southwest corner of Third and Townsend Streets. The total duration of all four exceedances would be about 15 hours per year, a reduction of about 40 hours per year from the project scenario. Because the duration of the hazard criterion exceedances would not increase with cumulative development, the project would not contribute to significant cumulative wind hazards.

## **TRANSPORTATION**

The proposed project is estimated to generate a total of about 3,500 weekday daily person-trips, of which about 300 would occur during the p.m. peak hour. Of the 300 p.m. peak hour person-trips, 180 would be by auto, 60 would be by transit and 60 by other modes, including walk, bicycle and other modes. The 180 p.m. peak hour auto-person-trips generated by the project represent 140 vehicle trips. The proposed project would generate approximately 41 delivery/service trips per day.

### **Existing-Plus-Project Transportation Conditions**

The intersection analysis assesses potential traffic impacts resulting from the addition of project-generated vehicle trips to the existing intersection conditions. All study intersections



would continue to operate at the same service levels as under existing conditions, and average delay per vehicle would generally increase by about one second. The project would not cause significant traffic impacts.

The addition of the project-related riders to MUNI corridors would not increase the number of passengers enough to substantially change the peak hour capacity utilization. All screenlines and sub-corridors would continue to operate below the MUNI standard of 1.0, and the project would not cause significant impacts on MUNI. The addition of project-related passengers on the regional transit providers would not have a substantial impact during the p.m. peak hour. Capacity utilization for all screenlines would remain similar to existing conditions. Thus, the project would not have a significant impact on regional transit systems.

The proposed project would generate a total parking demand for about 360 spaces. Since the proposed project would not provide off-street parking spaces, there would be a shortfall of about 360 spaces relative to demand. Proposed changes to the Planning Code in the Ballpark Vicinity Special Use District Permanent Zoning Controls, if adopted, would change the parking requirement for the project site, reducing the requirement from 329 to 220 spaces. It is not expected that the shortfall in parking would result in unsafe conditions due to illegal parking, or in a substantial alteration of the adjacent neighborhood character. Therefore, the project would not create significant secondary impacts related to parking demand. Either a new parking variance or a modification of the existing variance would be required to permit the proposed office space addition without provision of the Code-required 329 new on-site parking spaces.

The addition of project-generated pedestrian traffic would not substantially affect the operating conditions at King and Fourth Streets and at King and Third Streets. All crosswalks would continue to operate at LOS A. The proposed project would result in an increase in bicycle activity in the area. While the proposed project would result in an increase in the number of vehicles in the vicinity of the proposed project, this increase in itself would not be substantial

enough to affect bicycle travel in the area. Therefore, no significant impact on bicycle access would result.

In total, the proposed project and the existing office uses at the Berry and Wharfside Buildings (a total of 869,637 gsf) would generate about 183 daily truck trips, about 40 of which would be from the project's new office space. This corresponds to a total loading demand for about 9 spaces during an average loading hour, and about 11 spaces during the peak loading hour. Both the existing and new office uses would use the three off-street loading docks and the on-street yellow-zone loading spaces on Berry Street. Based on surveys of loading activities on Berry Street conducted in June 1999, available capacity currently exists in on-street and off-street loading spaces to accommodate the increased demand from the project.

During construction, the number of construction-related truck deliveries per day would range from 10 to 24. Construction-related activities would typically occur Monday through Friday, from 7:00 a.m. to 3:00 p.m. Some construction would occur during the night (6:00 p.m. to 12:00 a.m.) or on weekends to avoid disruption to tenants. Construction staging would occur primarily in the courtyard between the Wharfside Building and the Berry Building. On Berry Street, the parking lane would be used for truck parking and a holding area; this staging area would be separated from the sidewalk by a temporary barrier and the sidewalk would remain open. An opening in the barrier would be retained to allow access to the loading docks. On-street loading spaces on Berry Street would be temporarily unavailable during construction making loading and deliveries more difficult. The area between the Wharfside Building and the China Basin Channel that is occasionally used for deliveries would be used in place of the on-street loading spaces. No lane or sidewalk closures are expected on Third or Fourth Streets. However, if temporary traffic lane closures were determined to be needed, they would be coordinated with the City in order to minimize the impacts on local traffic. Lane closures for construction activities are likely to be prohibited on event days at Pacific Bell Ballpark, similar to the existing restrictions on streets around 3Com Park.



## Future Cumulative Transportation Conditions

Future Year 2015 Cumulative traffic volumes were based on the work effort for the *Mission Bay Final Subsequent EIR*. Future year 2015 cumulative conditions on transit have been updated to reflect 1997/1998 ridership data.

Mission Bay, the Pacific Bell Ballpark and the Third Street Light Rail projects would change the transportation conditions in the vicinity of China Basin Landing, and are included in the analysis of traffic effects from cumulative growth in 2015. The Mission Bay Redevelopment Plans call for several changes to the existing transportation network. Berry Street between Third and Fourth Streets will have one eastbound and one westbound lane, a reduction from the two existing eastbound lanes. Fourth Street south of the Channel will no longer intersect with Third Street, but will run south parallel to Third Street, ending at Mariposa Street. The Pacific Bell Ballpark is currently under construction across Third Street from China Basin Landing. Events at the ballpark will not occur every day and when they occur, transportation impacts will be most severe prior to and at the conclusion of the event. The Third Street Light Rail will operate along Bayshore Boulevard, Third Street, and Fourth Street, between the Caltrain Bayshore Station and downtown San Francisco, and will replace the existing MUNI 15-Third bus line. A station located on Fourth Street between King and Berry Streets will provide direct access to China Basin Landing.

Under 2015 conditions, the study intersection at King and Third Streets would operate at LOS F, while the remaining intersections would operate at LOS D or better. At the key study intersections of King/Third and King/Fourth, project-generated traffic would represent less than 1.0 % of the total 2015 volumes, and between 8 and 14% of the cumulative growth in traffic volumes between existing and 2015 conditions, excluding the growth due to Mission Bay. The project's contribution to cumulative traffic impacts would not be considerable; the intersection levels of service calculated for 2015 would occur with or without the project. Therefore, the project would not result in a significant cumulative effect on local traffic.

Ridership on MUNI is projected to increase by about 10,500 passengers, while capacity is projected to increase by 2,200 passengers by 2015, approaching or exceeding the capacity at all screenlines and creating unacceptably crowded conditions on most bus and light rail lines. The 34 transit trips generated by the proposed project that would cross the MUNI screenlines would have a minimal contribution to the cumulative transit ridership, and alone would not substantially affect the peak hour capacity utilization of each screenline.

For the 2015 cumulative conditions, BART to the East Bay would operate with a three-hour performance standard of 114%, slightly less than the 115% standard. AC Transit would operate with a capacity utilization of 135%, primarily due to the fact that no capacity increases for the Transbay routes have been programmed by AC Transit. It is anticipated that overcrowded conditions and substantial delays per passengers would result. The proposed project would contribute less than 1%, and alone would not substantially affect the peak hour capacity utilization of each regional screenline.

By 2015, the parking demand in the vicinity of the China Basin Landing project is expected to increase due to substantial additional development in Mission Bay and on sites outside of Mission Bay along King and Townsend Streets. The unmet parking demand in Mission Bay North plus that from China Basin Landing, including the proposed expansion, would be about 2,000 spaces. Although several proposed projects in the vicinity of China Basin Landing include new parking, and a total of about 160 net new parking spaces are proposed to be added at China Basin Landing as part of a separate project, the overall demand in the area is expected to exceed supply in the future. Some motorists would search for parking in the adjacent South of Market neighborhood, further away from the China Basin Landing site; others might find it more convenient to use transit to access the site. On weekday afternoons and evenings, and on weekends, when sold-out or nearly sold-out games or other events occur at the ballpark, there would be little or no parking available in the area surrounding the China Basin Landing buildings beyond that reserved for use by China Basin Landing tenants in compliance with the China Basin Landing parking variance.

The roadway improvements associated with the Mission Bay development include the reconfiguration of Berry Street between Third and Fourth Streets. The total number of on-street loading spaces on Berry Street will be reduced from 11 to 5, with two additional spaces available at times other than the 7:00 to 9:00 a.m. drop-off and 4:00 to 6:00 p.m. pick-up activities at a child-care center planned on the block directly north of the proposed project site. Total loading demand from the China Basin Landing buildings, including the project, would be about 9 spaces during an average loading period and about 11 spaces during the two peak loading hours of 7:00 to 8:00 a.m. and 3:00 to 4:00 p.m. Thus, the 9-space average loading demand would be met by the combination of 7 on-street spaces on Berry Street, 2 on-street spaces on Fourth Street, and the existing 3 off-street spaces. The afternoon peak-hour loading demand for 11 spaces would also be met, as all 7 on-street spaces on Berry Street would be available during the 3:00 to 4:00 p.m. peak loading demand hour in addition to the 2 on Fourth Street and 3 in the Berry Building. The morning peak loading demand for 11 spaces would not be met by the 10 on- and off-street loading spaces that will be available during the 7:00 to 9:00 a.m. period.

The reduction in the number of on-street spaces that are currently used for parking and loading/unloading activities on Berry Street and Fourth Street would increase the potential for double-parking on Berry Street. Double parking on Berry Street would force vehicles to pull into the opposite lane to pass the double parked vehicle. This is not considered a significant impact because of the relatively low traffic volumes. However, these vehicles could interfere with the proposed drop-off traffic at the child-care center on the north side of the street.

Construction activities associated with the proposed project would likely occur at the same time as other ongoing and proposed projects in the vicinity of the site. Projects include the Pacific Bell Ballpark, Mission Bay North, and retrofit of the superstructure of the western span of the Bay Bridge and the retrofit of the western approach of the Bay Bridge. Construction in Mission Bay North on the block bounded by Third, Fourth, Berry and King Streets would eliminate the existing off-street surface parking facility used by China Basin Landing, and would result in increased congestion in the immediate vicinity of China Basin



Landing during the construction period. The Bay Bridge retrofit activities could potentially result in additional vehicles temporarily using I-280 and therefore an increase in congestion in the vicinity of the on- and off-ramps at King Street.

### **Interim Year Transportation Conditions**

In order to evaluate the combined effects of a number of recent development projects within the China Basin / South Beach area, an interim year analysis was performed for traffic, transit and parking conditions. The analysis included those projects undergoing environmental review, along with other projects that are already under construction or have recently been approved.

The impacts associated with the selected list of Interim Year projects are accounted for in the results of the analysis of 2015 cumulative conditions. The interim year analysis was conducted to determine whether the projects may require near-term improvements that were not anticipated to be needed until 2015, or whether some of the results estimated for 2015 cumulative conditions may be exceeded. In general, the analysis indicates that the Interim Year projects would not substantially affect the transportation system. The majority of the 22 study intersections would operate at LOS D or better. The intersections of Third and Brannan Streets and Second and Brannan Streets, which would operate at LOS F, are beyond the project traffic study area and would receive minimal amounts of traffic from the proposed project.

Adequate capacity exists on the MUNI lines serving the study area and on the regional service providers to accommodate the new interim year transit demand. Under Interim Year conditions there would be a parking shortfall of 872 spaces. These parking conditions may lead to an increase in traffic congestion, and some drivers may switch modes (to transit, carpool or other).

## AIR QUALITY

Buildout of the proposed project would result in a total increase of approximately 1,100 vehicle trips per day. These increased trips would generate approximately 19 lb/day of reactive organic gases (ROG), 25 lb/day of nitrogen oxides (NO<sub>x</sub>), and 8 lb/day of particulate matter (PM<sub>10</sub>). Because project development would not result in mobile source operation emissions exceeding the BAAQMD's significance thresholds of 80 lb/day for ROG, and NO<sub>x</sub>, and PM<sub>10</sub>, the project's contribution to regional emissions would not be a significant environmental impact.

The project would not cause any intersection to substantially deteriorate in performance. While the intersections of King and Third Streets and King and Fourth Streets would retain their existing level of service (LOS D) in the existing-plus-project conditions, none would decline to LOS D, E, or F as a result of the project. Carbon monoxide (CO) emissions would be below the screening threshold of 550 pounds per day and project-related traffic would not cause a change in LOS at any affected intersection; therefore, the project would have a less-than-significant impact related to CO.

The San Francisco Bay Area Air Basin is a nonattainment area for ozone. Regional emissions of ROG and NO<sub>x</sub> contribute to cumulative regional increases in ozone levels. Individually, the project would not be expected to have any significant air quality impacts. The project would not conflict with relevant objectives in the Air Quality Element of the *San Francisco General Plan*. For these reasons, the project would not be expected to contribute significantly to cumulative air quality impacts.



## GROWTH INDUCEMENT

Employment at the project site would increase by up to about 700 employees, as a result of the additional office space in the project. This increase would be less than 0.2% over 1995 city-wide employment. Direct increases in employment and business, such as that from the proposed project, induce further growth in households, population, housing, employment, and a range of other goods and services to meet the needs of the additional economic activity. Some of the induced growth would occur in San Francisco; the majority would occur within the San Francisco Bay Area. The direct and induced growth of the proposed project is anticipated in forecasts of employment, households, and population growth prepared for the region by the Association of Bay Area Governments. No expansion of municipal infrastructure not already under consideration would be required to serve the project.

## C. MITIGATION MEASURES

In the course of project planning and design, measures have been identified that would reduce or eliminate potential environmental impacts of the project. These measures have been, or would be, adopted by the project sponsor, its architects, or its other contractors and, therefore, are proposed as part of the project. Mitigation measures from the Initial Study (see Appendix A, pp. A.40-A.41) are listed below, identified with an asterisk (\*). Because this report does not identify any significant environmental impacts, no additional mitigation measures are identified.

## AIR QUALITY

### Measures Included in the Project

- \* The project sponsor would require its contractors to implement as appropriate the BAAQMD's basic control measures for emissions of dust during construction: (1)

water all active construction areas at least twice daily; (2) cover all trucks hauling soil, sand, and other loose materials, or require trucks to maintain at least two feet of freeboard; (3) pave, apply water three times daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas, and staging areas; (4) sweep daily (with water sweepers) all paved access roads, parking areas, and staging areas; (5) sweep streets daily (with water sweepers), if visible soil material is carried onto adjacent public streets.

## **GEOLOGY**

### **Measures Included in the Project**

- \* One or more geotechnical investigations by a California-licensed geotechnical engineer are included as part of the project. The project sponsor and its contractors would follow the recommendations of the final geotechnical reports regarding any construction for the project. The project sponsor would ensure that the construction contractor conducts a pre-construction survey of existing conditions and monitors the adjacent building for damage during construction, if recommended by the geotechnical engineer.
- \* If the design-related geotechnical report identifies settlement potential during building loads, then the project sponsor and its contractor would follow the geotechnical engineers' recommendations regarding installation of settlement markers around the perimeter of shoring to monitor any ground movements outside of the shoring itself. Shoring systems would be modified as necessary in the event that substantial movements are detected.

## **HAZARDS**

### **Measures Included in the Project**

- \* Before any major project-related construction occurs, the project sponsor would undertake building surveys for hazardous materials (e.g., mercury) in areas where such materials could be disturbed as a result of project-related activities. Any hazardous materials discovered would be managed in accordance with local, state, and federal laws, regulations, and appropriate standards.

## D. ALTERNATIVES

The two alternatives selected for analysis encompass the full range of basic alternatives to the proposed project.

- The **No Project Alternative**, referred to as Alternative 1, is a “no build/no change” scenario.
- The **Reduced Development Alternative**, referred to as Alternative 2, would construct only one additional floor rather than the three additional floors of the proposed project.

Due to the unique characteristics of the project site and the project sponsors’ objectives, there is no other comparable site within San Francisco that could be a viable alternative location.

### ALTERNATIVE 1: NO PROJECT ALTERNATIVE

The existing conditions at the project site are described in the Setting sections under each environmental topic in this EIR. If existing physical conditions were to continue into the foreseeable future, land uses on the proposed project site would remain as they are now, i.e., the 42-foot high Berry Building would continue to be used for commercial offices, with ancillary retail uses. The related 80-foot-tall Wharfside building on the same block but immediately to the south of the proposed project would continue as office space. The block’s height zone would not be reclassified from 60 feet to 90 feet and there would not be an associated Planning Code amendment.

Future development in the area around the project site as anticipated under approved plans would completely change and intensify land uses in the vicinity of the project, similar to conditions described for the proposed project. The Giants Ballpark (Pacific Bell Ballpark) is already under construction and will open in the year 2000. The Mission Bay Redevelopment Areas and Rincon Point-South Beach Redevelopment Area will include new buildings varying from 80 feet to 160 feet high. As with the proposed project, Alternative 1 would have no significant land use impacts nor would it be inconsistent with any City plans or policies.

Under this alternative, the additional three floors would not be built, and no change in wind patterns would result from the addition. Cumulative growth, especially the Mission Bay North redevelopment, would still occur. Wind speeds and duration of hazard criteria exceedances in the project vicinity would generally decrease with or without the project's contribution to wind reductions, because additional buildings north and west of the project site would impede the wind.

As with the project, Alternative 1 would not cause significant project-specific or cumulative transportation or air quality impacts.

## **ALTERNATIVE 2: REDUCED DEVELOPMENT ALTERNATIVE**

Under the Reduced Development Alternative, land uses on the proposed project site would continue as they are now in office and retail uses. One floor would be added to the Berry Building, raising it 15 feet from 42 feet to 57 feet in conformity with the existing 60-foot height limit. The related 80-foot tall Wharfside building on the same block, immediately to the south of the proposed project, would continue as office space and remain at the same height. The block's height zone would not be reclassified from 60 feet to 90 feet and there would not be an associated Planning Code amendment.

Future development as anticipated under approved plans would substantially change and intensify land uses in the vicinity of the project site, similar to conditions described for the proposed project and the No Project Alternative. Alternative 2 would contribute to intensified development in the project area; as with the project, this alternative would have no significant land use impact.

With the Reduced Development Alternative, wind conditions would not change substantially compared to the wind conditions under the project scenario. With the Reduced Development Alternative, the total duration of exceedances of the wind hazard criterion of the Planning Code would be reduced from the existing 56 hours per year, and the project's 55 hours per



year, to 44 hours per year. As with the project, because the alternative would reduce the duration of the hazard criterion exceedances, the wind effects would not be considered significant.

Transportation impacts from Alternative 2 would be about 60% less than those described for the proposed project, and, like the project, would not create any significant impacts on local or regional transportation systems. Air quality impacts would be less than those shown for the project and also would not create significant environmental impacts.

Although the project would not have any unavoidable significant impacts, this alternative would be considered the “environmentally superior” alternative because it would further reduce less-than-significant environmental impacts of the project.

## **E. AREAS OF CONTROVERSY AND ISSUES TO BE RESOLVED**

Based on concerns received in response to the Initial Study/EIR Requirement published May 21, 1999, areas of controversy include whether required variance findings can be made in support of providing no parking for the proposed office space addition; the project’s potential contribution to projected shortfalls of parking supply relative to demand in the general area; the project’s mass, shadow effects, and wind effects in relation to planned housing uses in Mission Bay North across Berry Street; and potential conflicts and competition on Berry Street in the areas of traffic, parking, the proposed Mission Bay child care center dropoff/pickup, and loading demands for all future proposed uses. None of these issues involves significant environmental effects. The project sponsors are considering modifications to the project that could address some of these issues.



## II. PROJECT DESCRIPTION

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China Basin Landing is an office complex located south of Berry Street, between Third and Fourth Streets, in the South Beach/China Basin area of San Francisco. It consists of two buildings. The proposed project would expand one of the buildings by adding three stories and about 193,600 gross square feet (gsf), while the proposed addition would raise the building's height to about 87 feet. Under the San Francisco Planning Code the existing height limit in this area is 60 feet. Therefore, the project includes a proposed height reclassification to 90 feet. The additional office space would increase the amount of parking required under the Planning Code by 329 spaces. Because no parking is proposed, the project would require approval of a new parking variance pursuant to Section 305.

### A. PROJECT SPONSORS' OBJECTIVES

The project sponsor is BRE/CBL, L.L.C., the owner and operator of the China Basin Landing Building complex. The sponsor's objectives are:

- To provide additional, high-quality, commercial, rental space to serve the needs of businesses and create additional employment opportunities in San Francisco.
- To construct a three-story addition to the Berry Building that integrates the style and characteristics of the existing building and the surrounding waterfront area.
- To increase the height of the Berry Building to complement the scale of the Wharfside Building, the Ballpark, and the Mission Bay redevelopment that will surround the site.
- To provide desirable office space that will be consistent with the intensification of land uses in the vicinity of the site while maintaining public access to the China Basin Channel.
- To create rental space that will allow for the expansion of office space for the project site's existing tenants, including the site's multimedia tenants, such as internet technology companies, and the tenants who require the use of switching stations for telecommunications.

- To strengthen the existing structure for shear resistance and update the building's fire and life safety systems.

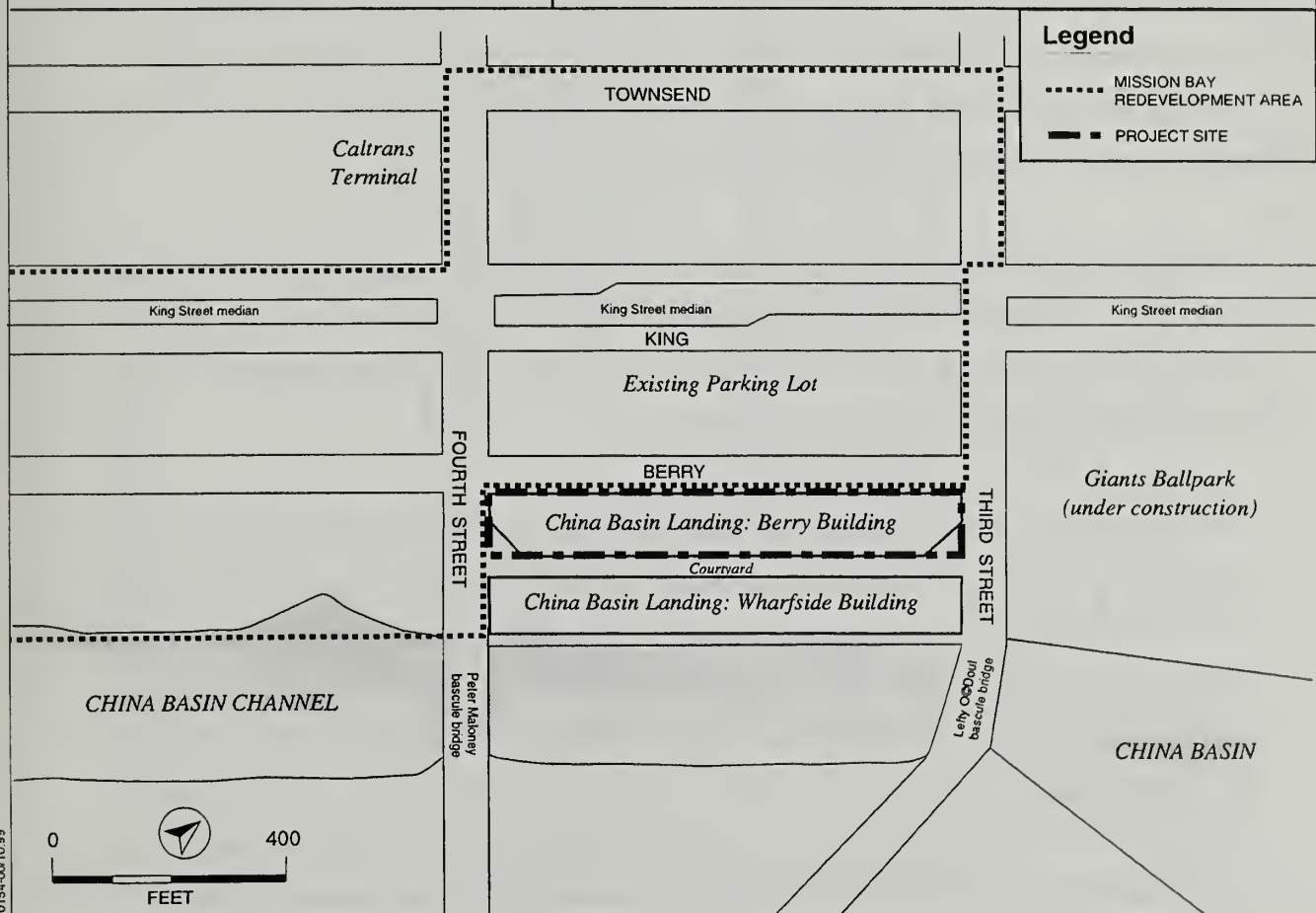
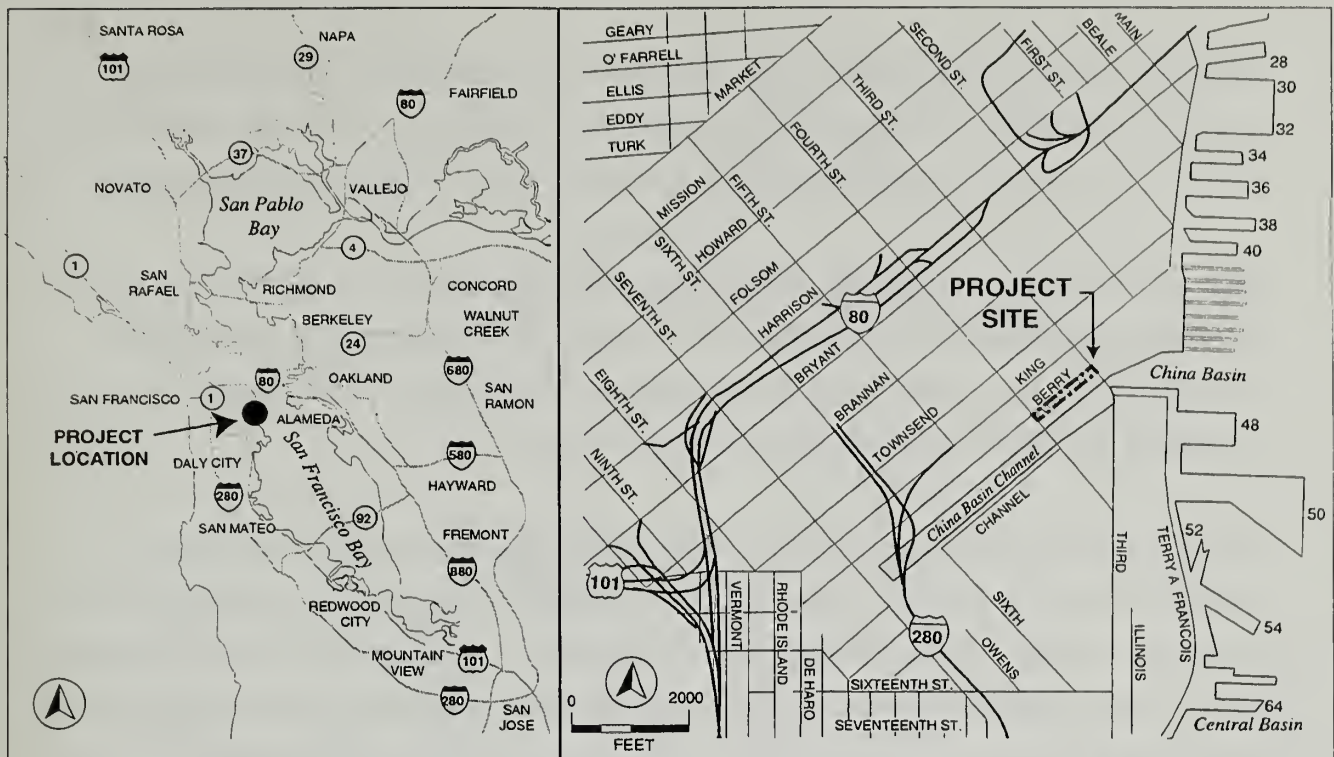
## B. PROJECT LOCATION

As shown in Figure 1, the project site is in the South Beach/China Basin area of San Francisco, south of the South of Market area. The project site is adjacent to, but outside of, the Mission Bay North Redevelopment Area. The project site is on Assessor's Block 3803, Lot 5, and is approximately 225,000 gsf in size.

## C. PROJECT CHARACTERISTICS

China Basin Landing is located south of Berry Street, between Third and Fourth Streets in the South Beach/China Basin area of San Francisco. It is comprised of two buildings. The Berry Building (subject of the expansion) was constructed in 1991 and contains 226,000 gsf. The Wharfside Building was constructed in 1922 originally as a warehouse and gradually converted into office beginning in the 1970's. The Wharfside Building is six stories tall and contains about 450,000 gsf. Between the Berry and Wharfside buildings is a pedestrian courtyard providing access to both buildings through several elevator lobbies. Under the courtyard is an existing one-level parking garage containing 69 parking spaces, with ingress from Third Street and egress to Fourth Street. As a separate project, the project sponsor proposes to expand the underground parking area, under the Berry Building, to increase off-street parking spaces provided from about 69 to about 230.

The proposed project would adjust the height limit on the project site to increase the permitted height from 60 to 90 feet, and would expand the existing Berry Building at China Basin Landing by adding about 193,600 gsf in three stories to the existing three floors. The existing Berry Building is 42 feet tall (from the street level), and the project would increase the height to approximately 87 feet. The height with the parapet would be about 90 feet, although the parapet is not included in the formal height calculation under the Planning Code. Similarly, the building's mechanical penthouse would be about 10 feet tall above the 87 foot roof



SOURCE: EIP Associates

CHINA BASIN LANDING EXPANSION PROJECT: EIR

FIGURE I: PROJECT LOCATION



height but it would not be included in the height calculation because it would conform to Planning Code limitations on rooftop mechanical penthouses. The 193,600 gsf expansion area would be office space, and the Berry Building would remain in office and commercial uses.

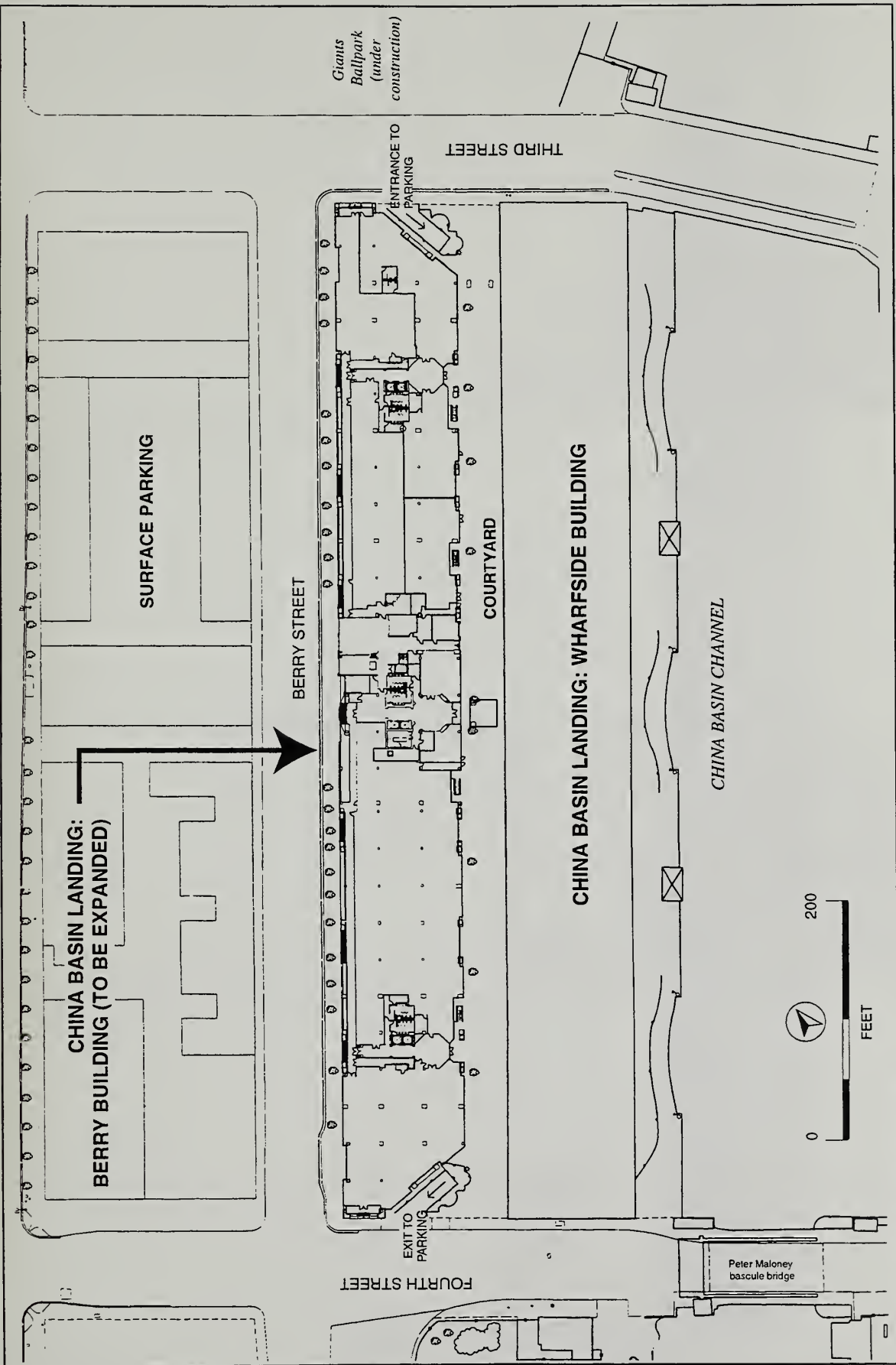
Figure 2 shows a plan view of the project site and the surrounding area, including the location of Pacific Bell Ballpark for the San Francisco Giants, currently under construction across Third Street. Figures 3 and 4 show two elevations of the proposed Berry Building, including the existing three stories, plus the three stories to be added.

The facade of the building expansion would be a glass and metal window wall system, consistent with the lower three floors of the Berry Building. The three-story addition would be set back from the ends at both Third and Fourth Streets. Setbacks have been incorporated into the design of the Berry Street facade at each new level to provide a lighter appearance and add architectural interest. Two 180-foot-long areas on the new sixth level would be set back to create landscaped roof terraces accessible to tenants. The primary entrance to the Berry Building and to the China Basin Landing complex would remain mid-block on Berry Street, with secondary entrances at Third and Fourth Streets.

Construction of the proposed project would take approximately 14 months. The existing Berry Building was designed with a future expansion in mind. Construction would be staged along Berry Street on the north side of the complex. It is anticipated that the majority of the work would be done during normal working hours.

The China Basin Landing complex (including the Berry and Wharfside buildings) is currently required to provide 533 off-site parking spaces within 1,500 feet of the complex in addition to 67 on-site spaces and two van loading spaces to be located beneath the pedestrian courtyard, under Variance Case No. 97.321V, issued in October 1997. The existing parking garage contains 69 parking spaces and no van spaces. However, China Basin Landing will provide the required van loading spaces to comply with the applicable variances. The proposed addition of 193,600 gsf of office space would increase the amount of parking required under the current Planning Code by about 329 spaces, necessitating a new parking variance, pursuant to Section 305 of the Planning Code.

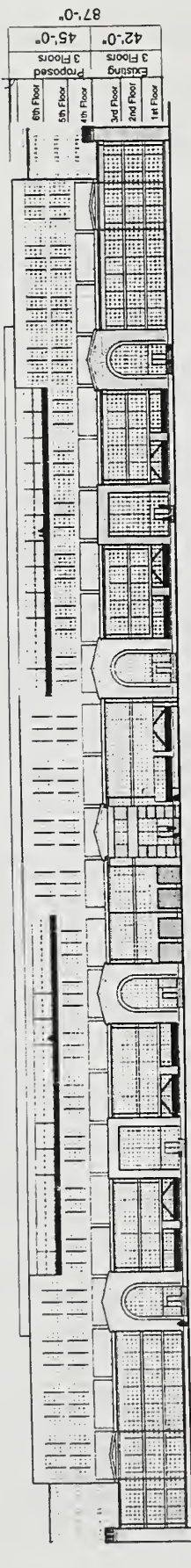




CHINA BASIN LANDING EXPANSION PROJECT: EIR

FIGURE 2: SITE PLAN

SOURCE: Fisher Friedman Associates, EIP Associates

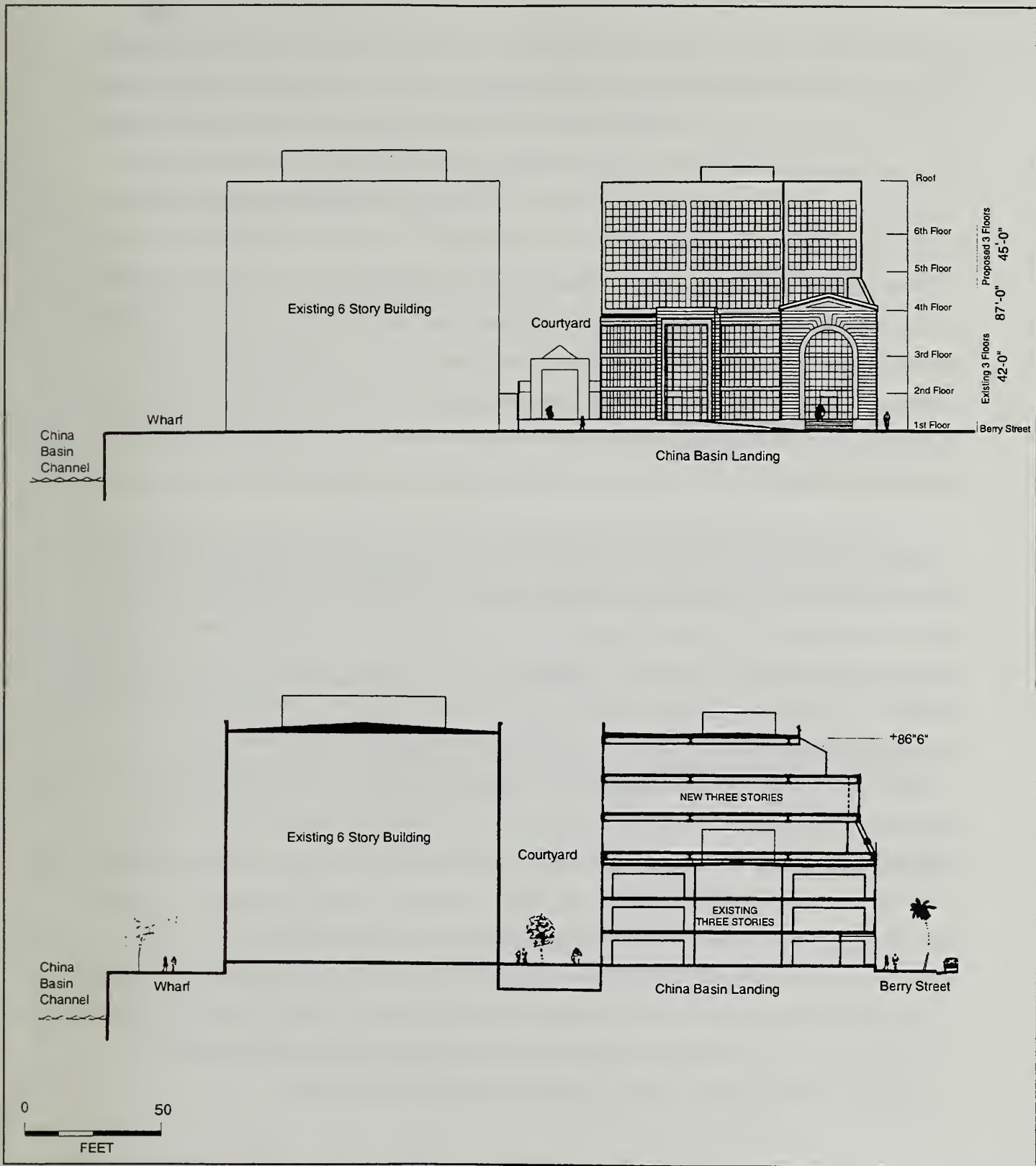


0 100  
FEET

SOURCE: Fisher Friedman Associates

CHINA BASIN LANDING EXPANSION PROJECT: EIR

FIGURE 3: BERRY STREET ELEVATION



SOURCE: Fisher Friedman Associates

**CHINA BASIN LANDING EXPANSION PROJECT: EIR**

**FIGURE 4: THIRD STREET ELEVATION  
AND CROSS SECTION**

As noted above, a separate project, if approved, would add 177 new parking spaces beneath the adjacent Wharfside Building in an existing basement area. The existing 69 parking spaces would be restriped to 53, for a total of about 230 on-site spaces, a net increase of 160 spaces. These parking totals include the required parking for the handicapped van loading spaces would also be added. This area is adjacent to, and would be combined with, the existing parking garage under the courtyard between the buildings. A separate environmental analysis has been completed for the parking expansion project. Construction of the parking project is expected to take approximately 8 months. The parking project may or may not be approved and constructed prior to the Berry Building expansion; however, staging for the parking expansion will occur within the existing parking garage. The parking project would serve the existing China Basin Landing complex, and is not associated with the proposed expansion of the Berry Building.

To satisfy the requirements of its existing parking variance, the China Basin Landing complex leases parking spaces across Berry Street and across King Street for its tenants. The Mission Bay redevelopment will displace these spaces. A new location for displaced parking would have to be leased by the China Basin Landing complex to meet the requirements of the existing variance. The additional spaces under the Wharfside Building could partially offset loss of the surface parking across Berry Street. The existing variance and the proposed parking expansion project are not related to the Berry Building expansion. A new parking variance or approval of an exception from the parking requirement would be required for the Berry Building expansion if the Ballpark Vicinity Special Use District is approved (see p. 38).

The existing China Basin Landing buildings are served by three loading docks. As new construction, the proposed 193,600 gsf of office space may require one loading dock, pursuant to Planning Code section 152. If an additional loading space is required, the project sponsor would provide two additional van loading spaces in the proposed garage to satisfy the requirement, if the Ballpark Vicinity Special Use District is approved.

The Initial Study, in Appendix A, was published on May 21, 1999. At that time the proposed building expansion had a slightly different design, and added a total of about 170,000 gsf. The EIR analyzes a new design that increased the total new square footage to the present



proposal at 193,600 gsf. This increase is not large enough to change any conclusions in the Initial Study as to the topics that were addressed there and found to be less than significant. The analyses in the EIR covers the full 193,600 gsf proposed.

## **D. PROJECT APPROVALS**

Following a public hearing on the Draft EIR before the Planning Commission, responses to written and oral comments will be prepared. The EIR will be revised as appropriate and presented to the Planning Commission for certification as to its accuracy, objectivity, and completeness. No permits may be issued before the Final EIR is certified.

The following additional actions would be necessary to adopt and implement the project:

- Planning Commission and Board of Supervisors approval of the proposed height reclassification of the project site (Lot 5, Block 3803) from the 60-X Height/Bulk District to a 90-X Height/Bulk District to permit construction to a proposed height of 87 feet.
- Planning Commission office space authorization (Section 321 of the Planning Code).
- Zoning Administrator approval of a parking variance or exception to permit construction of up to 193,600 gsf of office space with no on-site off-street parking spaces, where 329 parking spaces would be required by the Planning Code.

Conformity with the San Francisco General Plan and the Priority Policies of Planning Code Section 101.1 (Proposition M) would be considered in the context of these approval actions.

### III. ENVIRONMENTAL SETTING AND IMPACTS

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An application for environmental evaluation for the China Basin Landing Building Expansion project was filed April 20, 1998 and amended on April 13, 1999. On the basis of an Initial Study published on May 21, 1999, the San Francisco Planning Department determined that a focused EIR was required. The Initial Study determined that the following effects of the project would either be insignificant or would be reduced to a less than significant level by mitigation measures included in the project, and thus required no further analysis: land use; visual quality; population; employment and housing; noise; utilities and public services; biology; geology and topology; water; energy and natural resources; hazards; and cultural resources. Therefore, the EIR does not discuss these issues, except for informational purposes in a few cases, such as land use. (See Appendix A, p. A.1, for the Initial Study.)

As a result of the Initial Study, this focused EIR discusses only the following topics: land use, plans, and policies (for informational purposes); wind; transportation; and air quality. This chapter presents the environmental setting and impact analysis for each of these topics. The analyses in this chapter of the proposed building addition, at a height of about 87 feet, also addresses the effects of the proposed height reclassification to 90X. Chapter IV presents mitigation measures.

#### A. LAND USE, PLANS, AND POLICIES

##### SETTING

##### LAND USE

The project site (see Figures 1 and 2, Project Location and Site Plan) is the northern half of the China Basin Landing office complex. The complex is located on the block bounded by

Berry Street on the north, China Basin Channel on the south, Fourth Street on the west, and Third Street on the east, generally in the South Beach/China Basin area of San Francisco.<sup>1</sup> As shown in Figures 1 and 2, the project site's southern edge is the northern edge of the courtyard running approximately east-west between the Berry Building and the Wharfside Building. The project site is on Assessor's Block 3803, Lot 5, and is approximately 225,000 square feet. (Block 3803 also contains Lot No. 6, which is approximately 10 by 10 feet and is owned by CalTrains.) The site contains two buildings, both of which are located on Lot 5.

The proposed project is situated generally south of the South of Market area where land uses are primarily office, light industrial, retail, residential, and live/work uses. Building heights in this area generally range between one and eight stories, with older buildings about one to four stories high and newer buildings from six to eight stories high. The Wharfside Building, immediately adjacent to the proposed expansion and constructed in 1922, is six stories and about 84 feet tall.

In the immediate vicinity of the project site, the San Francisco Giants Ballpark (Pacific Bell Ballpark) is being built on the adjacent block to the east across Third Street. The top of the ballpark structure will be about 130 feet tall with light standards reaching about 175 feet. The adjacent block to the north of the project site across Berry Street is a paved parking lot to be developed as part of the Mission Bay North Redevelopment Area. The next block north (bounded by Third, Townsend, Fourth and King Streets) is also parking and is to be developed as part of Mission Bay North. The block immediately adjacent and west of the project site in Mission Bay North (bounded by King Street on the north, Fourth Street to the east, and Fifth Street to the west, and China Basin Channel to the south) is vacant and is the site of the demolished I-280 freeway off-ramp. The maximum height in Mission Bay North is 160 feet, permitted on up to 20% and 15% of the developable area on the blocks north and west, respectively, of the Berry Building Site.



The CalTrain Depot and other facilities related to the commuter-rail operations serving the Peninsula and South Bay areas lie on two blocks to the northwest of the project site in the area bounded by Fourth, Townsend, Sixth and King Streets. The train terminal contains customer services such as a newsstand and snack bar. Uses along the north side of Townsend Street, west of Fourth Street, include light manufacturing, wholesale trade, and warehousing.

Immediately northeast of the project site is the South Beach subarea of the Rincon Point-South Beach Redevelopment Project (which includes the site of the new Pacific Bell Ballpark, the San Francisco Giants ballpark currently under construction on Third Street between King Street and China Basin Channel, mentioned above). Along Townsend west of Fourth Street, and along Third Street north of King Street, are one- and three-story office, retail, and light industrial buildings.

The southern edge of the block containing both the proposed project site (the Berry Building) and the Wharfside Building (together constituting the China Basin Landing office complex) is the China Basin Channel. On the Channel to the west is the Mission Creek Marina, a 20-unit houseboat community with slips for 35 pleasure craft and parking for about 50 vehicles.<sup>2</sup> The marina, adjacent to the south side of China Basin Channel and west of the Peter Maloney Bridge, is under the jurisdiction of the Port of San Francisco.

North of the project site, land uses change from relatively underutilized land use to be developed as part of Mission Bay North, to predominantly mixed, low-rise commercial and industrial uses, residential development, and surface parking, to high-intensity office use near Market Street. The South End Historic District, characterized by industrial buildings with red brick facades, is the area generally bounded by Third Street (at King Street), Brannan Street, Second Street, Bryant Street, Delancey Street, Townsend Street, Second Street, and King Street.<sup>3</sup> South Park and South Beach are two neighborhoods in the South-of-Market area. The South Park neighborhood, located between Third and Second Streets, and Bryant and Brannan Streets, is composed of older residential buildings that have been converted to commercial and



live/work uses. It is a neighborhood surrounding a small grassy area called South Park, which is outfitted with play equipment and picnic tables. The South Park area is characterized by two- to three-story residential buildings with office, retail, restaurant, and residential uses. Buildings ranging from one to four stories are built in a ring around South Park. The area is within the larger South of Market area generally known as Multimedia Gulch for its concentration of software companies specializing in multimedia applications.

The South Beach neighborhood, developed in the last ten years, contains a mix of multi-family residential, neighborhood-serving commercial uses, and waterfront development. South Beach extends northeast along the waterfront from Third Street and China Basin Channel and is part of the Rincon Point-South Beach Redevelopment Plan Area. The area's apartment buildings range from about three to six stories high, although two of the residential towers are 13 and 14 stories high, respectively. Several of the existing and proposed apartment buildings include retail uses such as grocery stores, restaurants, and other services on the ground floor.

Current and future development based on recently approved plans will dramatically change surrounding land uses. The recently approved Mission Bay North Redevelopment Plan includes the area two blocks to the north of the project site and three blocks to the west. Development under the Plan will replace the paved parking lot with entertainment, commercial, and residential uses and would develop the vacant blocks to the west with multi-family residential complexes totaling up to 3,000 dwelling units and 600,000 sq. ft. of entertainment and commercial space. The area to the south of the project site across the China Basin Channel is included in the recently approved Mission Bay South Redevelopment Plan. The Mission Bay South area will include residential, commercial, light-industrial, office, retail, hotel, and public open space land uses, including the major new expansion site for University of California San Francisco's biomedical research facility. North of Townsend Street, outside the boundaries of Mission Bay North, substantial new development has occurred over the last 10 years, primarily in the Rincon Point/South Beach area, and has accelerated recently due to favorable economic conditions, approval of Pacific Bell Ballpark,

approval of Mission Bay, and other factors. The area to the northeast on King Street, between Second and Third Streets, is also experiencing major changes. Two office building projects at a height of 105 feet, and a proposal to convert another building from warehouse to restaurant use on the same block, are currently under review by the City.

## APPLICABLE PLANS AND POLICIES

The project site is subject to policies and regulations of a number of public agencies. This section summarizes the pertinent agencies and regulations that control land use on the project site and in the vicinity.

Land use on the project site is under the sole jurisdiction of the City and County of San Francisco as formulated in the *San Francisco General Plan (General Plan)* and the San Francisco Planning Code. The final redevelopment plans for the Pacific Bell Ballpark and Mission Bay North and Mission Bay South isolate the proposed project site and the China Basin Landing office complex as a one-block parcel, outside of, and surrounded by, land use controlled by the San Francisco Redevelopment Agency through the Mission Bay North Redevelopment Plan, the Mission Bay South Redevelopment Plan, and the Rincon Point - South Beach Redevelopment Plan, along with their respective guidelines-for-development. In addition, the project site's one-block parcel lies outside of Port of San Francisco jurisdiction and boundaries of the Port's *Waterfront Land Use Plan*.

As noted in the Initial Study (see Appendix A), the project site is not within the jurisdiction of the Bay Conservation and Development Commission (BCDC) that regulates new development, since it lies beyond the first 100 feet inland from Bay waters subject to tidal action.

The following subsections discuss the *San Francisco General Plan* (Commerce and Industry Element and the Northeast and Central Waterfront Area Plans), the San Francisco Planning

Code, adjacent redevelopment plans (Mission Bay North and South, and Rincon - South Beach).

### San Francisco General Plan

The *San Francisco General Plan (General Plan)*, adopted by the Planning Commission, is the comprehensive, long-term plan containing the land use policies for San Francisco. The *General Plan* includes a number of elements focusing on different topics (Residence, Commerce and Industry; Affordable Housing, Transportation; Urban Design; Recreation and Open Space; Community Facilities; Environmental Protection; Energy; and Community Safety). In addition to the policies set forth in *General Plan* elements, the project is subject to policies established in Area Plans adopted as part of the *General Plan*.

The Commerce and Industry Element of the *General Plan* is intended to serve as a guide for both the public and private sectors in making decisions related to economic growth and change. Several objectives relate to creating a diverse economic base, increasing tourism and increasing the jobs available to all sectors of the labor force. In summary, the Element's three overriding goals are continued economic vitality, social equity, and environmental quality. Three of eight objectives address economic planning while the remaining five focus on specific economic sectors. The three general/city-wide objectives include managing growth to enhance the total City living and working environment, maintaining and enhancing a sound and diverse economic base and fiscal structure, and expanding employment opportunities (particularly for the unemployed and the economically disadvantaged). The other objectives focus on the economic sectors of industry, maritime industry, neighborhood commerce, government, health and education services, and visitor trade.

Although the project site lies outside of the *General Plan* Area Plans, the two nearby Area Plans are the Northeastern Waterfront Area Plan and Central Waterfront Area Plan. The Northeastern Waterfront Area Plan was adopted as part of the *General Plan* in December



1980, and provides planning objectives and policies for the northern half of San Francisco's waterfront.<sup>4</sup> Together with the Central Waterfront Area Plan, the Northeastern Waterfront Area Plan provides long-range planning guidance for the entire Bay shoreline in San Francisco. The proposed project site is adjacent to and west of the North China Basin subarea of the Northeastern Waterfront Area Plan. The goals of the Northeastern Waterfront Area Plan provide for: (1) uses which positively contribute to the waterfront's environmental quality, (2) enhancing the economic vitality of the Port and the City, (3) preserving and enhancing the unique maritime character of the area, (4) taking advantage of the unique economic opportunity provided by San Francisco Bay, and (5) providing for the maximum possible visual and physical access to and along the Bay while minimizing the adverse environmental impacts of existing and new activities.<sup>5</sup>

The northern portion of the Central Waterfront Area Plan encompasses the Mission Bay North and South Redevelopment Plans immediately surrounding the proposed project site to the north (two blocks), west (three blocks), and south (covered by the whole Mission Bay South Redevelopment Plan). The major objective of the Central Waterfront Area Plan is to maintain and expand maritime and industrial activities, and to complement this land use with residential, commercial and recreational uses developed on surplus land. The purpose of the Central Waterfront Area Plan is to encourage development to meet the City's economic and employment needs without sacrificing environmental quality.

Some policies of the *General Plan* that are relevant to the proposed project are listed below:

Urban Design Element

- |                        |   |
|------------------------|---|
| Objective 3, Policy 2: | Avoid extreme contrasts in color, shape and other characteristics which will cause new buildings to stand out in excess of their public importance. |
| Objective 3, Policy 5: | Relate the height of buildings to important attributes of the city pattern and to the height and character of existing development.                 |



Commerce and Industry Element

Objective 2, Policy 1: Seek to retain existing commercial and industrial activity and to attract new such activity to the city.

Transportation Element

Objective 11, Policy 11.3: Encourage development that efficiently coordinates land use with transit service, requiring that developers address transit concerns as well as mitigate traffic problems.

Objective 16, Policy 16.1: Reduce parking demand through the provision of comprehensive information that encourages the use of alternative modes of transportation.

Objective 17, Policy 17.1: Discourage the provision of new long-term parking downtown and near major employment centers.

Objective 28, Policy 28.1: Provide secure bicycle parking in new governmental, commercial, and residential developments.

Objective 32, Policy 32.1: Discourage new long-term commuter parking spaces for single-occupant automobiles in and around downtown. Limit the long-term parking spaces to the number that already exists.

No substantial conflicts with the above policies or with other policies of the *General Plan* have been identified and no amendment of the *General Plan* would be required. In general, consistency with the *General Plan* is considered by project decision-makers independently of the environmental review process. Any potential conflicts not identified here would not change the analysis of physical environmental effects addressed in this EIR.

**Rincon Point - South Beach Redevelopment Plan**

The Rincon Point-South Beach Redevelopment Plan area comprises 115 acres in two non-contiguous portions located along the waterfront between Mission Street and China Basin.

The proposed project site lies immediately west of the Plan's western boundary across Third Street. The Redevelopment Agency and the City and County of San Francisco adopted the Rincon Point-South Beach Redevelopment Plan as a means of providing economic revitalization and physical renewal to an area of the City that had become underutilized and blighted as a result of declining demand for maritime-related uses. The Plan includes residential, commercial, and office land uses. The *Plan* includes development of Pier 40, South Beach Harbor, and South Beach Park. Pier 40 includes surface parking and offices for six maritime-related businesses. South Beach Harbor has berths for 680 boats and related facilities. South Beach Park is a 5-acre park that may be expanded to include additional open space and additional parking for the harbor. The Rincon Point-South Beach Redevelopment Plan has been amended several times, most recently to include the site of Pacific Bell Ballpark, immediately east of the project site.

#### **Mission Bay North and Mission Bay South Redevelopment Plans**

Immediately surrounding the proposed project site to the north and west is the recently approved Mission Bay North Redevelopment Plan. Across the China Basin Channel to the south of the project site and Mission Bay North lies the Mission Bay South Redevelopment Plan area. The two plans together encompass about 303 acres and call for revitalization of underutilized land and buildings through mixed-use development. The plans include development for up to 1.5 million gross sq. ft. of retail space; a new 43-acre University of California San Francisco (UCSF) site containing 2.65 million gross sq. ft. of instruction, research, and support space, and a site for a public school; a mix of 5,557,000 gross sq. ft. of research and development, light manufacturing, and office space surrounding the UCSF site to its west, south, and east; a 500-room hotel between Third and Fourth Streets south of China Basin Channel; police and fire stations; off-street parking for most uses; and about 47 acres of open space (including 8 acres within the UCSF site).

Approximately 6,090 residential units would be located on the north and south sides of China Basin Channel, including a mix of market-rate and affordable units, both for rental and for sale. For the two-by-three block area of Mission Bay North adjacent to the project site to the north and west, the Mission Bay North Redevelopment Plan envisions that the paved parking lot between King, Townsend, Third and Fourth Streets will be replaced with entertainment, commercial, and residential uses, and that the vacant blocks to the west will have multi-family residential complexes totaling up to 3,000 dwelling units and 600,000 gross sq. ft. of entertainment and commercial space.

In the vicinity of the proposed project, Mission Bay North has two height zones and Mission Bay South has one height zone, as presented in Table 1, and shown in Figure 5, page A.12, of Appendix A (the Initial Study). Height Zone 1a, at the northern tip of the Project Area, provides that 50% of the developable area could extend up to 120 feet, and an additional 20% could extend up to 160 feet; the remaining area (30%) would be limited to 80 feet. Height Zone 1a controls the building bulk of the 160-foot towers; four 160-foot-high towers with plan lengths of 165 feet and plan diagonals of 190 feet, above 120 feet, could be developed under the Redevelopment Plan.

Height Zone 1b, which covers the remainder of the Mission Bay North Redevelopment Area, provides that 10% of the developable area could extend up to 90 feet, and an additional 15% could extend up to 160 feet; the remaining area (75%) could extend up to 65 feet. In addition, buildings within 100 feet of the Redevelopment Plan boundary along the Channel would be limited to 65 feet. Buildings fronting the Channel edge would maintain an average height of 50 feet to a depth of 20 feet. Six 160-foot-high towers with plan lengths of 160 feet and plan diagonals of 190 feet above 90 feet could be developed in Height Zone 1b.

Height Zone 2, along the southern side of the Channel, provides that 10% of the developable area could extend up to 90 feet, and an additional 15% could extend up to 160 feet; the remaining area (75%) could extend up to 65 feet. Three 160-foot-high towers with residential



**TABLE 1**  
**HEIGHT ZONES (HZ) IN THE**  
**MISSION BAY REDEVELOPMENT AREAS**

Heights	Mission Bay North		Mission Bay South
	HZ-1a (North of Proposed Project)	HZ-1b (West of Proposed Project)	HZ-2 (South of Project Across and Along Channel)
Base Height	80 ft.	65 ft.	65 ft.
% of developable area	30%	75%	75%
Mid-rise Height	120 ft.	90 ft.	90 ft.
% of developable area	50%	10%	10%
Tower Height	160 ft.	160 ft.	160 ft.
% of developable area	20%	15%	15%

*Source:* City and County of San Francisco Planning Department, San Francisco Redevelopment Agency, *Mission Bay Subsequent Environmental Impact Report*, September 1998, Volume I, pp. III.24-25, Table III.B.2, Provisions Governing Height Zones in Proposed Mission Bay Redevelopment Areas; p. III.26.

plan lengths of 160 feet and plan diagonals of 190 feet above 90 feet and hotel plan lengths of 200 feet above 90 feet could be developed in Height Zone 2.

### Zoning Map and Planning Code Requirements

The San Francisco Planning Code, which incorporates by reference the San Francisco Zoning Maps, governs permitted uses, densities, and the configuration of buildings within San Francisco. A permit to construct a new building (or to alter or demolish an existing one) may not be issued unless either a proposed project conforms to the Planning Code, or an exception is granted pursuant to provisions of the *Planning Code*. The Planning Department is the city agency responsible for implementing the *Planning Code*. Zoning on the project site is M-2 (Heavy Industrial) and 60-X is the Height/Bulk District. A range of uses is permitted in M-2 Districts, including office uses. The height limit is 60 feet with no bulk limitations. The M-2 District has a maximum floor-area-ratio (FAR) of 5.0:1 (Section 123, Planning Code). With a



5:1 FAR, the maximum development potential for the lot would be approximately 1,123,400 gross square feet. Lot 5 contains both the existing Wharfside and Berry Street buildings, and their existing combined development totals approximately 689,630 gross square feet in area, or 61 % of the Lot 5's development potential at the applicable FAR of 5:1.

As office space, the proposed project would be subject to Section 313 of the San Francisco Planning Code, the Office Affordable Housing Production Program (OAHPP) currently proposed to be renewed and refined as the Jobs/Housing Linkage Program. The City's OAHPP requires construction of affordable housing or an in-lieu payment, to meet the affordable housing demand created by office development located anywhere in the City. The project is also located within the area subject to the Transit Impact Development Fee, requiring payment of a fee to the Municipal Railway (MUNI) based on the additional gross square feet of office space.<sup>6</sup>

The China Basin Landing complex presently operates under a variance issued in 1997 (Variance Case No. 97.321V, October 1997) that requires provision of 67 on-site parking spaces and 533 off-site parking spaces within 1,500 feet of the site. The 67 on-site parking spaces lie beneath the pedestrian courtyard that is between the Berry Building and the Wharfside Building. The 533 off-site spaces are provided on two surface lots across Berry Street and across King Street from the project site. These spaces will be displaced by the Mission Bay redevelopment, and China Basin Landing would have to use new space to meet the requirements of the existing variance.

As part of the approvals required for the proposed project, the project sponsor will request a new variance under Section 305 of the San Francisco Planning Code from the additional parking that would be required for the new office space. The new parking variance would only deal with the requirements of the proposed office space. Thus, the subject of discussion in the EIR is the new variance and not the existing variance.

Ballpark Vicinity Special Use District Permanent Zoning Controls are proposed for the area surrounding the new Pacific Bell Ballpark, including the project site. These proposed controls address floor area ratios, height limits, land uses permitted in the area, loading requirements and parking requirements. If adopted, the controls would apply to the proposed project. The proposed SUD would reduce the amount of parking required for the project; all other controls applicable to the project site would remain the same. Thus, the project as proposed would comply with the new SUD; either a parking variance or an exception to the parking requirement under Planning Code Sections 161(l) and 307(g) would be necessary.

### **LAND USE IMPACTS**

In the Initial Study, published May 21, 1999 (Appendix A), the Planning Department determined that the project would not have a substantial adverse effect on land use and that the project would not conflict with land use plans of the City or region. The following discussion is included for informational purposes only.

The proposed addition of three more stories of office space to an existing three-story office building located next to a six-story office building and the increase in permitted building height, would intensify, but not change, the character of land use on the site. Office uses are permitted uses within the M-2 Heavy Industrial Zoning District. The existing Wharfside (six-story) Building was constructed in 1922 and gradually converted into office space beginning in the 1970's. The proposed project's 87-foot height (after the three-story, 193,000 gsf expansion) would require a height reclassification through a Zoning Map amendment to permit building heights up to 90 feet within an area presently zoned with a 60-foot height limit. Changing the height limit would not change the maximum development potential on the site, since it is controlled by the 5:1 FAR of the M-2 District. (The lot's maximum development potential with an FAR of 5:1 is approximately 1,123,400 gsf) With the additional development of the proposed project, development on Lot 5 would increase about 28% from

the existing 689,630 gsf to 883,230 gsf. This would increase the development on Lot 5 from 61% to about 79% of the lot's maximum development potential.

As an office development project that intensifies existing office uses on the project site, the project would be consistent with mixed-use development in the vicinity of the site, both now and in the future. Existing uses include primarily office, light industrial, retail and recreational uses, and some residential uses. The San Francisco Giants ballpark is under construction across Third Street. The two blocks to the north include paved parking lots. The lot to the west is vacant. On the north side of Townsend Street, two blocks from the site, existing warehouse and office buildings are being renovated; live/work space is under construction at Fifth and Townsend Streets and a 13-story residential building is under construction at Second Street, between King and Townsend Streets.

The area near the project site will become much more urban as it develops according to applicable plans, including the *San Francisco General Plan* Area Plans (Northeastern Waterfront Area Plan and the Central Waterfront Area Plan) and the San Francisco Redevelopment Agency's redevelopment plans (Rincon Point - South Beach Redevelopment Plan, the Mission Bay North Redevelopment Plan, and the Mission Bay South Redevelopment Plan). Immediately across Berry Street, in Mission Bay North, office, retail and residential space is planned.

The proposed project's height would be moderate compared to the heights of planned surrounding development and development under construction. The SFRA housing project presently being built at Second and King Streets will be approximately 133 feet tall, or 46 feet higher than the 87 feet of the proposed project. The 140-foot-tall Giants ballpark is under construction immediately across Third Street to the east. Heights of building towers up to between 120 and 160 feet are permitted within the Mission Bay areas in the vicinity of the project site and immediately across from the project site on Berry Street.



Associated with the *Mission Bay North Redevelopment Plan*, retail uses will be developed on the two blocks immediately to the north, with affordable housing proposed in the middle of the block across Berry Street from the proposed project's existing loading docks. This mid-block residential structure is proposed to be 50 feet tall, and therefore lower than the proposed project. The affordable housing project would be located between taller, mixed commercial and market-rate residential development on either end of that block, to heights of up to 160 feet (see Height Zone 1a, in Table 1).

The Mission Bay North Redevelopment Plan envisions residential units on the blocks to the west of the proposed project site. The Mission Bay South Redevelopment Plan provides for a hotel facility immediately to the south across China Basin Channel, with mostly residential uses further to the south and southwest. Ultimately, the Mission Bay North and Mission Bay South Redevelopment Plans will result in a virtually complete change and intensification in land uses in the Redevelopment Areas.

In conclusion, the proposed project would not change land uses in the project vicinity or be substantially out of character with the existing mixture and intensity of use in the project area, and would be consistent with the urbanization and intensification of the vicinity under the Mission Bay redevelopment plans and other plans discussed above. Thus the project would have no significant land use impacts.

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NOTES: Land Use, Plans, and Policies

1. For ease of reading, Berry Street and streets parallel to it are described as running east-west, and Third Street and streets parallel to it are described as north-south streets, even though the street network in this area south of Market Street is not exactly aligned north-south and east-west.
2. Currently, 20 houseboats and 25 pleasure craft have permits. There are berths for 35 pleasure craft. Paul Osmondson, Planning Director, Port of San Francisco, telephone conversation with EIP Associates, May 30, 1997.
3. San Francisco Planning Code, Appendix I to Article 10.



### III. Environmental Setting and Impacts

#### A. Land Use, Plans, and Policies

4. City and County of San Francisco, Department of City Planning, *Northeastern Waterfront Area Plan*, adopted by City Planning Commission Resolution 7643, January 31, 1980 and as amended.
5. City and County of San Francisco, Department of City Planning, *Northeastern Waterfront Area Plan*, adopted by City Planning Commission Resolution 7643, January 31, 1980 and as amended.
6. City and County of San Francisco Administrative Code, Chapter 38, Transit Impact Development Fee.

## B. WIND

### SETTING

#### WIND SPEED AND PEDESTRIAN COMFORT CRITERIA

The comfort level of pedestrians varies under different conditions of sun exposure, temperature, clothing, and wind speed.<sup>1</sup> Wind speeds up to four miles per hour (mph) have no noticeable effect on pedestrians' comfort level. With winds from 4 mph to 8 mph, wind is felt on the face. Winds from 8 mph to 13 mph will disturb hair, cause clothing to flap, and extend a light flag mounted on a pole. Winds from 13 to 19 mph will raise loose paper, dust and dry soil, and will disarrange hair. For winds from 19 to 26 mph, the force of the wind will be felt on the body. With 26 to 34 mph winds, umbrellas are used with difficulty, hair is blown straight, there is difficulty in walking steadily, and wind noise is unpleasant. Winds over 34 mph increase difficulty with balance, and gusts can blow people over.

Wind conditions partly determine the level of pedestrian comfort on sidewalks and in other public areas. Large buildings can redirect wind flows around and down to street level, resulting in increased wind speed and turbulence at street level. In order to provide a comfortable wind environment for people in San Francisco, the City established specific equivalent wind speed<sup>2</sup> comfort criteria to be used in the evaluation of proposed buildings. The Planning Code's wind comfort criteria are based on pedestrian-level wind speeds that include the effects of turbulence, referred to as "equivalent wind speeds." The Planning Code specifically outlines these criteria for the Downtown Commercial District and each of the Rincon Hill, Van Ness Avenue, and South of Market areas.

In those areas, Section 148 of the Planning Code establishes an equivalent wind speed of 7 mph in seating areas and 11 mph in areas of substantial pedestrian use as wind speed comfort criteria. New buildings and additions to buildings may not cause ground-level winds to exceed

these levels more than 10% of the time year-round between 7:00 a.m. and 6:00 p.m.<sup>3</sup> If existing wind speeds exceed the comfort level, new buildings and additions must be designed to reduce ambient wind speeds to meet these criteria, if possible. Section 148 also establishes a hazard criterion, which is a 26 mph equivalent wind speed for a single full hour. Buildings may not cause winds that meet or exceed this hazard criterion. Although Section 148 does not apply to the project, the Section 148 standards have been selected as providing an appropriate methodology and criteria for the following analysis of wind effects.

## EXISTING WIND CONDITIONS

Data from the U.S. Weather Bureau and Bay Area Air Quality Management District show that westerly (i.e., from the west) to northwesterly winds are the most frequent and strongest winds during all seasons in San Francisco. Of the 16 primary wind directions measured at the old Weather Bureau station,<sup>4</sup> about 70% of all winds and more than 90% of the measured winds over 13 mph blow from five directions: northwest (NW), 10%; west-northwest (WNW), 14%; west (W), 35%; west-southwest (WSW), 2%; southwest (SW), 9%. All other wind directions occur 28% of the time and calms occur 2% of the time.

Average wind speeds are the highest during summer and lowest during winter. Strongest peak winds, however, occur in the winter when speeds of up to 47 miles per hour (mph) have been recorded.<sup>5</sup> Street-level winds exceeding the hazard criterion are mostly likely to occur in the winter. The highest average wind speeds occur in the mid-afternoon and the lowest occur in the early morning.

The “existing setting” for analysis of the project consists of all existing buildings together with the approved, but yet unbuilt or uncompleted, buildings in the vicinity of the site.<sup>6</sup> Approved, but unbuilt or uncompleted, buildings include the San Francisco Giants Ballpark (under construction) and its adjacent Pavilion building at Third and King Streets, and the One

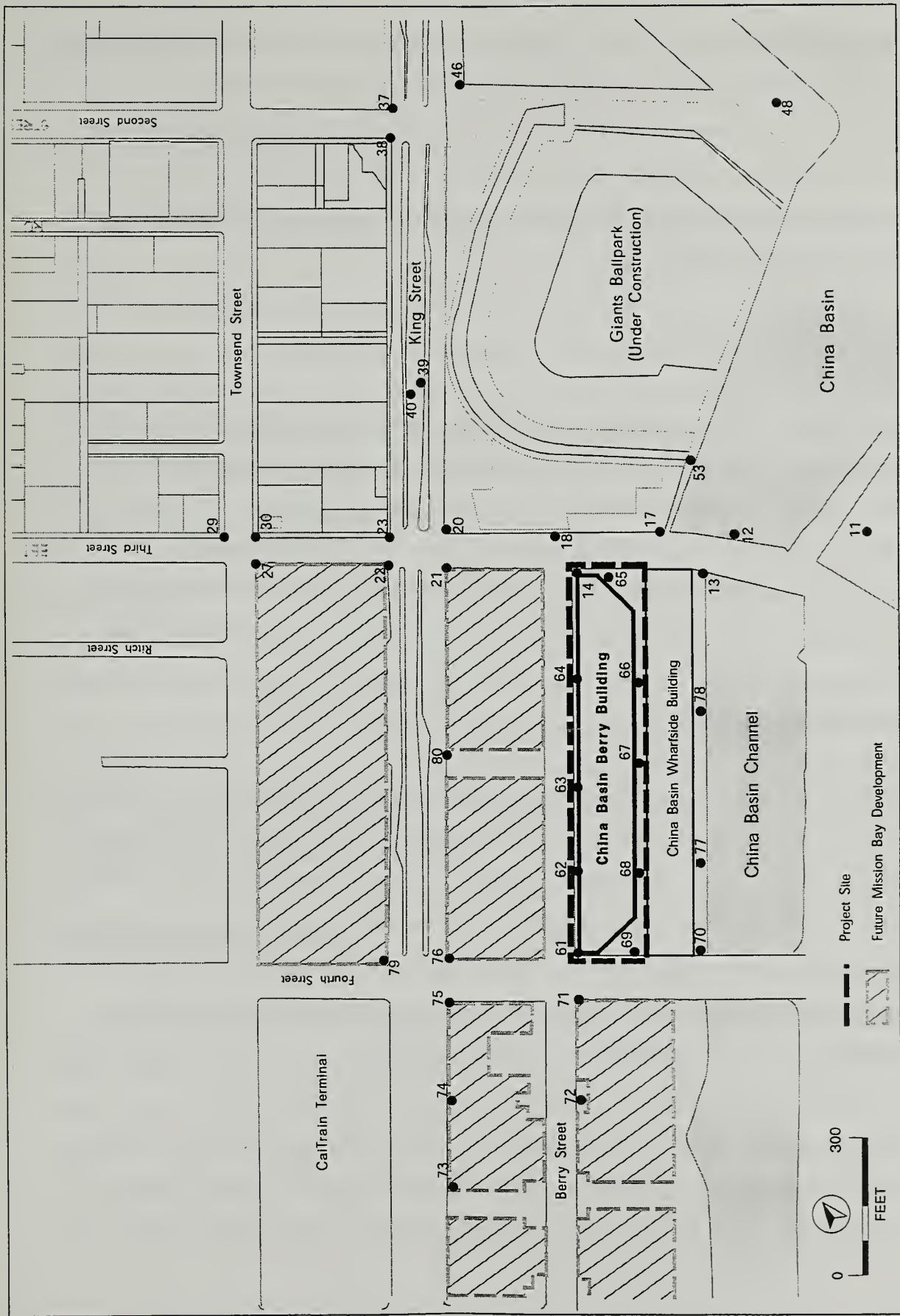
Embarcadero South building (under construction) at Second and King Streets. The Pavilion building included in this analysis is a three-floor structure containing approximately 50,000 gross sq. ft. of retail/commercial space. It is smaller than the four-story, approximately 136,000 gross sq. ft., Pavilion building considered in the Ballpark EIR, and is representative of the building under construction.<sup>7</sup>

Following the methodology of Section 148, wind-tunnel tests were conducted<sup>8</sup> to simulate the existing wind conditions and conditions under three scenarios including future development. Wind speed measurements were made at 40 test locations for each of the four scenarios. Figure 5 shows these locations. The testing focused on locations within the China Basin Landing Building complex, and on the sidewalks of Berry, King, Third and Fourth Streets. In addition, some locations on Townsend Street, as well as some locations around the Ballpark, were also tested. To facilitate comparison of the current wind-tunnel test with the wind-tunnel tests performed for the Ballpark, 20 test locations are at the same locations measured for the Ballpark test.<sup>9,10</sup> The other 20 test locations are new for this project. The test locations were selected to be representative of where wind problems might occur. More detail can be found in Appendix B.

Five existing and project site test locations were considered to be seating areas (#66, 67, 68, 77, 78 as shown on Figure 5), subject to the 7 mph seating comfort criterion. Three of these seating area points were in the pedestrian courtyard between the Berry Building and Wharfside Building, and two points were on the boardwalk between the Wharfside Building and the channel. All of the remaining 35 test locations were considered to be pedestrian areas, subject to the 11 mph pedestrian comfort criterion.

Throughout the following discussion all wind speeds reported refer to the equivalent wind speeds that would be exceeded 10% of the time when referring to the pedestrian criterion, and wind speeds exceeded one hour per year when referring to the hazard criterion.





SOURCE: ESA

CHINA BASIN LANDING EXPANSION PROJECT: EIR

FIGURE 5: WIND TEST POINT LOCATIONS

The existing setting conditions are considered windy; the average wind speed for all 40 test points is nearly 15 mph. Wind speeds in pedestrian areas range from 5 mph to 21 mph. Wind speeds of 14 mph or more occur at 26 test locations and wind speeds of 18 mph or more occur at 13 test locations. The highest wind speeds in the vicinity (19 mph to 21 mph) occur west of the project site on Berry Street, King Street, and at the southwest corner of the Wharfside Building, on Fourth Street.<sup>11</sup>

#### Existing Comfort Conditions

Under existing conditions, only three of the 40 test locations are within the Planning Code's applicable pedestrian-comfort or seating comfort criteria values. The pedestrian-comfort criterion value of 11 mph is exceeded at 32 of the 35 pedestrian locations. The three locations where the pedestrian-comfort criterion is met are the Lefty O'Doul Bridge (#12), the southeast corner of the Wharfside Building (#13), and the southeast corner of the Ballpark (#48). Wind speeds at all five seating locations exceed the seating comfort criterion value of 7 mph.

#### Existing Hazard Conditions

Under existing conditions, the Code's wind hazard criterion is exceeded at five of the 40 test locations: at the northeast corner of Second and King Streets (#37, with a total duration of 19 hours per year), at two test locations on Berry Street, at Fourth Street and west of Fourth Street (#71, with 4 hours per year and, #72, with 5 hours per year), at the northeast corner of Fourth and King Streets (#79, with 2 hours per year), and at the southwest corner of the Wharfside Building (#70, with 27 hours per year). The total duration of the existing exceedances of the hazard criterion is 56 hours per year.

## **IMPACTS**

### **STANDARDS OF SIGNIFICANCE**

As discussed above, the Planning Code contains wind comfort and hazard criteria (Section 148 and other sections, noted above). Although the Section 148 requirements do not apply to the project site, the criteria from Section 148 are used routinely by the City to gauge the significance of impacts associated with large projects. Thus, the project is evaluated using the 7 mph and 11 mph seating and pedestrian comfort criteria and the 26 mph hazard criterion of Section 148 of the Planning Code.<sup>12</sup> A project that would cause equivalent wind speeds to reach or exceed 26 miles per hour for a single, additional full hour of the year would exceed the hazard criterion, and would have a significant impact.

### **ANALYSIS**

Following the methodology of Section 148, wind-tunnel tests were conducted to simulate the existing wind conditions and to simulate wind conditions that would occur under an existing-plus-project scenario and under a cumulative development scenario.<sup>13</sup> In analyzing the wind effects of the proposed building, at about 87 feet tall, the analyses also addresses the effects of the proposed height reclassification to 90X.

#### **Existing-Plus-Project Scenario**

The project scenario consists of the project added to the existing setting, which includes the Giants Ballpark and Pavilion building and other approved buildings under construction in the nearby area, as well as all existing buildings in the vicinity. With the project, overall wind conditions would not change substantially. As with the existing setting, existing-plus-project wind conditions would be considered windy; the average wind speed for all 40 test locations would increase slightly (by 0.1 mph), but would remain less than 15 mph. Wind speeds in



pedestrian areas would range from 5 mph to 20 mph, as compared to 5 to 21 mph under existing conditions. Wind speeds of 14 mph or more would occur at 28 test locations and wind speeds of 18 mph or more would occur at 11 locations. The highest wind speeds in the vicinity (19 to 20 mph) would continue to occur west of the project site on Berry Street, King Street and at the southwest corner of the Wharfside Building, on Fourth Street. Compared to existing conditions, under the project, wind speeds would increase at 10 locations, remain unchanged at 18 locations, and decrease at 12 locations.

#### Existing-plus-Project Comfort Conditions

Six of the 40 test locations, three more than under the existing conditions, would be within the Planning Code's applicable comfort criteria. The additional test locations where the pedestrian-comfort criterion would be met are the southeast corner of Third and Townsend Streets (#30), the center of King Street near the Ballpark (#39), and the southeast corner of the Berry Street Building (#65). As with the existing setting, none of the five seating locations would be within the seating comfort criterion value of 7 mph.

#### Existing-plus-Project Hazard Conditions

With the project, the Planning Code's wind hazard criterion would be exceeded at seven of the 40 test locations. Four of the five exceedances that occur under the existing setting would continue, but the duration of these four exceedances would be reduced. The project would eliminate one existing exceedance, at the northwest corner of Fourth and King Streets (#79), with a duration of 2 hours per year and reduce the duration of the other existing exceedances by about 9 hours per year. The project would create three new exceedances: one on the east side of Third Street at Berry Street (duration of 1 hour per year) (#18), one on the west side of Third Street at Berry Street (duration of 5 hours per year) (#14), and one on King Street west of Fourth Street (duration of 3 hours per year) (#74). The total duration of the existing-plus-project exceedances would be 55 hours per year. This would be an overall decrease of one



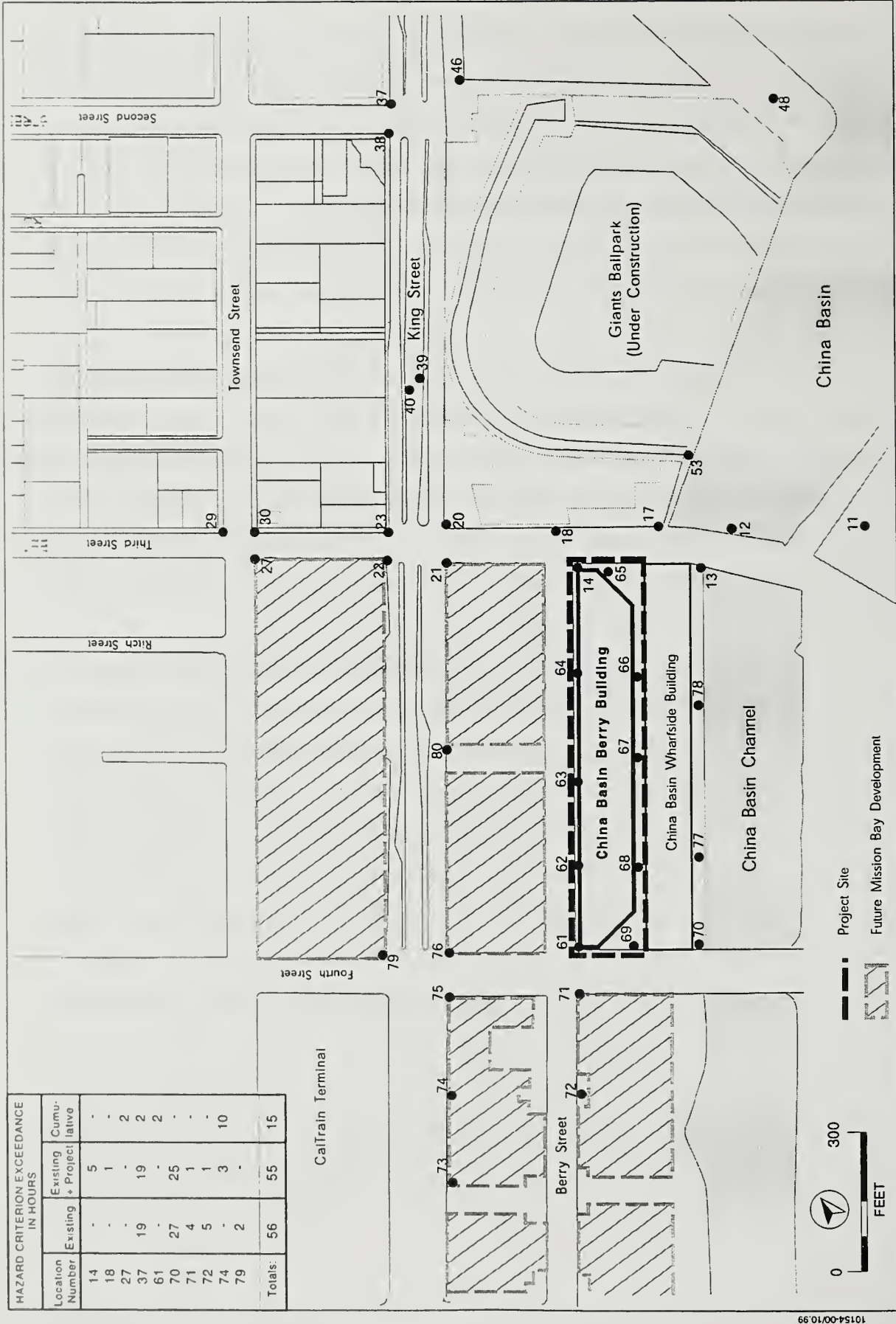
hour per year from the total of 56 hours per year under existing conditions. See Figure 6 for the test locations and a listing of the hazard exceedances for the existing, existing-plus-project, and cumulative development scenarios. Because the duration of the hazard criterion exceedances would not increase with the project, the wind effects of the project would not be considered significant impacts. No mitigation would be necessary.

### **Cumulative Development Scenario**

Current and future development of the area to the north and west of the project site would substantially alter wind conditions in the vicinity of the project.<sup>14</sup> The cumulative development scenario adds reasonably foreseeable future development, based on recently approved plans, to the existing-plus-project scenario. In the future, the Mission Bay North development, with buildings of heights ranging from 50 feet to 160 feet, would fill the now-vacant lands north and west of the project site.

With the cumulative development scenario, wind speeds would be substantially reduced. The average wind speed for all 40 test locations would decrease from above 14.5 mph during the existing setting and existing-plus-project conditions to 11.5 mph with the cumulative development. Wind conditions still would be considered windy. As with the existing setting and the existing-plus-project scenarios, wind speeds in pedestrian areas would range from 5 mph to 20 mph. Wind speeds of 14 mph or more would occur at 12 test locations and wind speeds of 18 mph or more occur at 4 test locations. The highest wind speeds in the vicinity (19 to 20 mph) would no longer occur on the project site, but would instead occur at the intersection of Fourth and King Streets and at the northeast corner of Townsend and Third Streets.

Compared to the existing-plus-project scenario, wind speeds under the cumulative development scenario would increase at eight test locations, remain unchanged at one location and decrease at 31 locations.



CHINA BASIN LANDING EXPANSION PROJECT: EIR

**FIGURE 6: WIND TEST POINT LOCATIONS AND WIND HAZARD EXCEEDANCE HOURS**

SOURCE: ESA

### Cumulative Development Comfort Conditions

Approximately half of the existing comfort-criteria exceedances would be removed. Twenty-two of the 40 test locations would be within the applicable wind comfort criteria. Seventeen of the 35 pedestrian locations, 11 more than under project conditions, would be within the Planning Code's pedestrian-comfort criterion value of 11 mph. All five seating locations would be within the 7 mph seating comfort criterion. This is compared to the existing setting or existing-plus-project conditions, where none of the seating locations would meet the seating comfort criterion.

### Cumulative Development Hazard Conditions

Under cumulative development conditions, the Planning Code's wind hazard criterion would be exceeded at four of the 40 test locations. Three existing exceedances and three project exceedances of the hazard criterion would be eliminated; the total duration of these eliminated exceedances would be 36 hours per year. Under cumulative conditions, two exceedances of the hazard criterion that occur under existing conditions would continue to occur; their total duration would be reduced from about 21 hours per year to about 12 hours per year. These remaining exceedances would be located at Second and King Streets (#37) and Fourth and King Streets (#79). Under the cumulative development scenario, two new exceedances of the hazard criterion would be created, one at the northwest corner of the Berry Building and one at the southwest corner of Third and Townsend Streets. The total duration of the two new exceedances would be about 4 hours per year. The total duration of all four exceedances under the cumulative development scenario would be about 15 hours per year. This would be a reduction of about 40 hours per year from the duration under the project scenario. Because the duration of the hazard criterion exceedances would not increase with cumulative development, the project would not contribute to significant cumulative wind hazards. No mitigation would be necessary.



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NOTES - Wind

1. Lawson, T.V. and A.D. Penwarden, "The Effects of Wind on People in the Vicinity of Buildings," Proceedings of the Fourth International Conference on Wind Effects on Buildings and Structures, London, 1975, Cambridge University Press, Cambridge, U.K., 605-622 1976.
2. Equivalent wind speed is defined as the mean wind multiplied by the quantity (one plus three times the turbulence intensity) divided by 1.45.
3. The Planning Code specifies the hours of 7:00 a.m. to 6:00 p.m. The available weather data cover the hours of 6:00 a.m. to 8:00 p.m. Thus, observations from two additional evening hours and one additional morning hour are included in the data.
4. The U.S. Weather Bureau data used in this analysis were originally gathered at the weather station atop the Old Federal Building at 50 United Nations Plaza during the years 1945-1950. Hourly measurements of wind speed and direction were taken at a height of 132 ft. at that station. The data base, comprised of 32,795 hourly observations, is of sufficient length to provide a reliable estimate of future wind conditions in San Francisco.
5. E. Jan Null, Climate of San Francisco, NOAA Technical Memorandum, NWS WR-126, February 1978.
6. This section is based on a study entitled Wind-Tunnel Test of the China Basin Landing Project, May 7, 1999, prepared by Charles B. Bennett of Environmental Science Associates. The text of the study, less the appended wind-tunnel test data, is included in Appendix B. The complete report is on file and available for review at the Planning Department, Office of Environmental Review, 1660 Mission Street, San Francisco, California.
7. San Francisco Giants Ballpark at China Basin, FEIR, p.VIII.16.
8. Detailed information about the test methodology, test results and analysis is presented in Appendix B.
9. Environmental Science Associates, Wind Tunnel Test and Evaluation of Pedestrian Wind Effects of the Proposed Pacific Bell Park, San Francisco, California, ESA Technical Memorandum #960333, March 12, 1997.
10. Note that the results of earlier wind tests of the Giants Ballpark differ from the results of this test, primarily because there are minor design differences between the Ballpark complex tested then and the Ballpark complex as constructed, including the smaller Pavilion building, tested here.
11. Street directions used here refer to local north - south, which aligns the Third Street, and local east - west, which aligns with King Street. However, all wind directions are true directions.
12. Due to the way the hazard criterion is stated, it is most appropriate to report of the exceedances of this criterion in terms of the number of hours per year that the excess occurs, rather than the wind speed, which would be 36 mph. Thus, for each wind analysis, the number of test locations and the total sum of the durations of exceedances of the hazard criterion are important measures of effect. This differs from reporting of both comfort criteria, for which wind speeds exceeded 10% of the time are examined and presented, but wind speeds are not summed.

13. See the Setting for a description of the requirements of City Planning Code Section 148.
14. Because the test was based on development concepts, the cumulative development scenario provides only an approximation of the wind effects of cumulative development. See the discussion in Appendix B.

## C. TRANSPORTATION<sup>1</sup>

### SETTING

#### TRAFFIC

##### Regional Vehicular Access

Interstate 80 (I-80), U.S. Highway 101 (U.S. 101) and Interstate 280 (I-280) provide regional access to the proposed project site and vicinity. I-80 provides one of the primary regional access to the proposed project area. The San Francisco-Oakland Bay Bridge is part of I-80 and connects San Francisco with the East Bay and points to the east. Three sets of off-ramps serve the proposed project area from westbound I-80: Fremont/Harrison Streets, Fifth/Harrison Streets, and Fremont Street between Mission and Howard Streets. A westbound on-ramp is located at Fourth/Harrison Streets. The I-80 eastbound on-ramps that serve the proposed project area are located at Fifth/Bryant Streets, Sterling Street near Second Street (HOV and trucks only between hours of 3:30 and 7:00 p.m.), Essex/Harrison Streets and First/Harrison Streets.

U.S. 101 provides access to both the north and south of the proposed project. I-80 joins U.S. 101 to the southwest of the proposed project site and provides access to the South Bay and the Peninsula. Nearby access to and from U.S. 101 to the south is provided from I-80, including the on- and off-ramps at Fourth Street and Seventh Street. In addition, U.S. 101 connects San Francisco and the North Bay via Van Ness Avenue or Gough/Franklin Streets, to either Lombard Street or Bay Street/Marina Boulevard, connecting to the Golden Gate Bridge.

Located south of I-80 and east of U.S. 101, I-280 provides the closest access from the China Basin and South Beach areas to southern San Francisco, the Peninsula and the South Bay. On-



ramps and off-ramps to I-280 nearby to the proposed project site are on King Street between Fourth and Fifth Streets, and at Sixth Street at Brannan Street.

### Local Street System

Third Street is the primary north-south arterial in the southeastern section of San Francisco, extending northerly from the interchange with Highway 101/Bayshore Boulevard to Market Street. At Market Street, Kearny Street extends to the north of Third Street. Between Fourth Street/Mission Rock Road and King Street, Third Street has four lanes and operates two-way. Between Townsend and Market Streets, Third Street operates one-way in the northbound direction, with four travel lanes and parking on both sides.

In the *San Francisco General Plan*, Third Street is designated as a Major Arterial (between Market Street and Bayshore Boulevard), a Primary Transit Street (between Market and Townsend Streets and between Fourth Street and Bayshore Boulevard), and a Neighborhood Commercial Street (between Market Street and Bayshore Boulevard). It is part of the County Congestion Management Program Network and is on the Metropolitan Transportation System Network. Third Street between Market and Folsom Streets is a designated Citywide Pedestrian Network Street. In addition, from south of Townsend to Bayshore Boulevard, Third Street is designated in the *San Francisco Bicycle Plan* as a Citywide Bicycle Route (Route #5, Class III, signed route only, no bicycle lane).

Fourth Street extends from Third Street north to Market Street. At Market Street, Stockton Street extends to the north of Fourth Street. North of Townsend Street, Fourth Street is a one-way southbound roadway providing four travel lanes plus parking on both sides. Between Townsend and Third Streets, Fourth Street operates in both directions (one northbound and two southbound lanes). There is one northbound lane between King and Townsend Streets and it is restricted to transit vehicles only. Fourth Street crosses China Basin Channel in a three-lane bascule bridge. Fourth Street is designated as a Major Arterial, a Transit Important Street

between Market and Third Streets and a part of the designated Citywide Pedestrian Network (between Market and Folsom Streets) in the Transportation Element of the *General Plan*. It is part of the County Congestion Management Program network and on the Metropolitan Transportation System network.

Berry Street extends discontinuously between Third and De Haro Streets. In the vicinity of the proposed project, Berry Street extends between Third and Fifth Streets. The section of Berry Street adjacent to the project site has one lane in the westbound direction, and two lanes in the eastbound direction. On-street parking is not permitted on the north side, and parking on the south side is restricted to handicap parking, truck loading, and passenger pick-up.

King Street is the recently completed boulevard providing an east-west connection between The Embarcadero and the I-280 on- and off-ramps at Fifth Street. It is a four-lane, two-way street with MUNI Metro tracks provided within an exclusive center median. King Street is designated as a Major Arterial; a Primary Transit Street between Third and Fourth Streets; part of the Congestion Management Network and the Metropolitan Transportation System east of Fourth Street; a Neighborhood Network Connection Street; and, east of Fourth Street, as a Citywide Bicycle Route in the *San Francisco Bicycle Plan* (Route #5, Class II, separate bicycle lane adjacent to curb lane). On-street parking on King Street is not permitted in the vicinity of the proposed project.

### **Intersection Conditions**

Operating conditions were evaluated at six study area intersections for the weekday p.m. peak hour (generally 5:00 to 6:00 p.m.), based on turning movement counts conducted on February 17 and 25, 1999. All study intersections are controlled by traffic signals. Operating characteristics of intersections are described by the concept of Level of Service (LOS), which is a qualitative description of an intersection's performance based on the average delay per vehicle. Intersection level of service ranges from LOS A, which indicates free flow or

excellent conditions with short delays, to LOS F, which indicates congested or overloaded conditions with extremely long delays. A detailed description of LOS is included in Appendix C. Transportation.

Table 2, page 70, presents the results of the intersection LOS analysis for existing weekday p.m. peak hour conditions. All study intersections currently operate at LOS D or better during the weekday p.m. peak hour. Traffic at the intersections of King/Third and King/Fourth experiences the highest delays, with an average vehicle delay of 28 and 38 seconds per vehicle, respectively (LOS D).

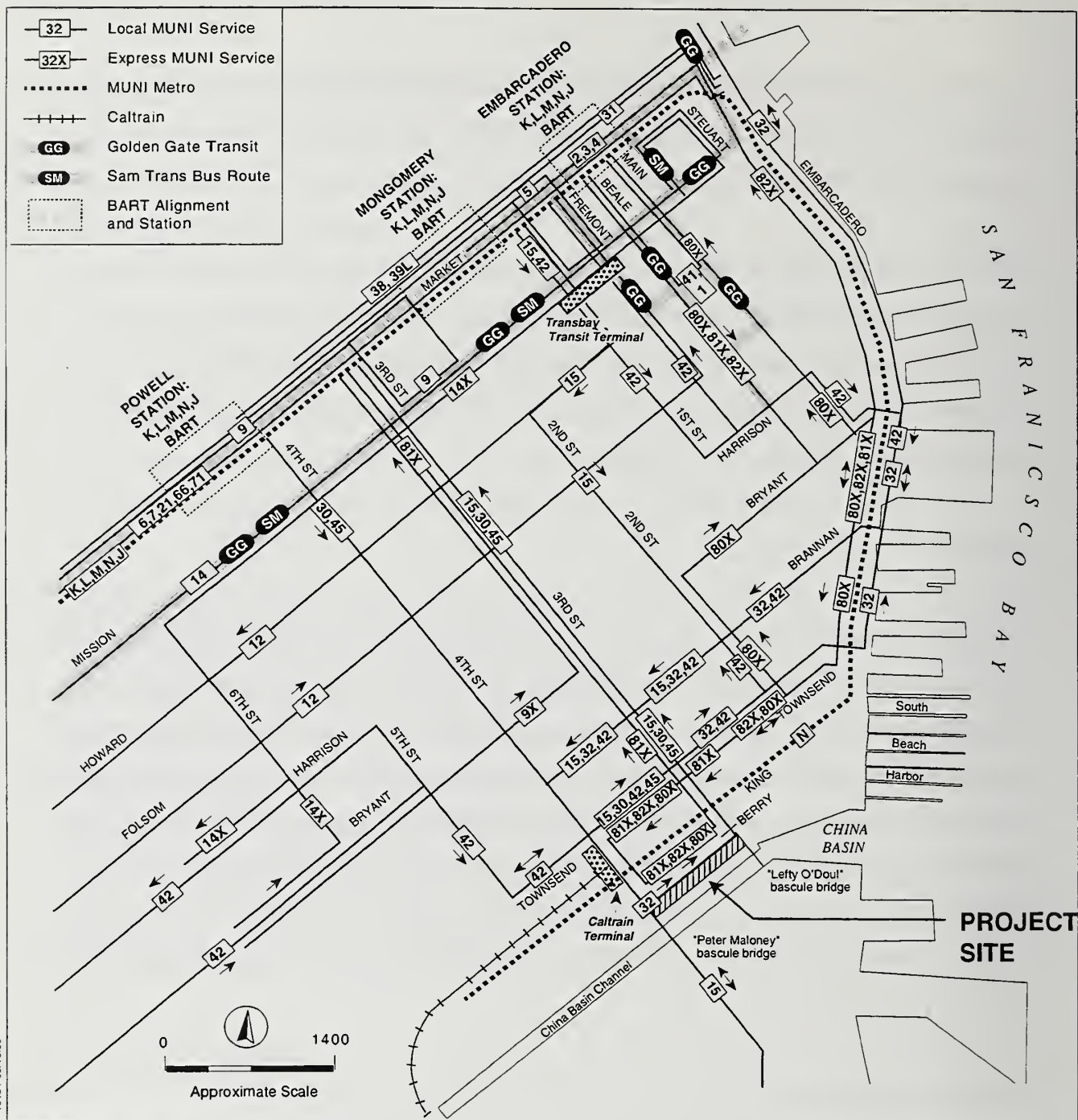
## TRANSIT

Local public transit service is provided by the San Francisco Municipal Railway (MUNI) bus and light rail lines on King and Third Streets in the project vicinity. Regional transit service to the Peninsula and South Bay is provided by CalTrain; the CalTrain terminal is located at Townsend and Fourth Streets, two blocks north of the project site. Additional regional service is provided by the Bay Area Rapid Transit District (BART) along Market Street and Golden Gate Transit, AC Transit, and the San Mateo County Transit District (SamTrans) at the Transbay Terminal, which is located approximately one mile north of the proposed project. Figure 7 presents the services provided by the regional and local transit operators to the study area.

### Local Transit Service

The San Francisco Municipal Railway (MUNI) provides transit service within the City and County of San Francisco, including bus (both diesel and electric trolley), light rail (MUNI Metro), cable car and electric streetcar. MUNI operates a total of nine bus lines in the vicinity of the proposed project, all of which stop at the CalTrain terminal at Fourth/Townsend Streets (see Figure 7). Three of these lines provide peak-hour peak-direction service only (towards





CHINA BASIN LANDING EXPANSION PROJECT: EIR  
**FIGURE 7: REGIONAL TRANSPORTATION**

downtown in the morning and to CalTrain in the evening), and two other lines make some stops at the CalTrain terminal. Therefore, these lines were not considered to provide service to the project site. In addition, the N-Judah MUNI Metro line operates along King Street, with nearby stops at Fourth and King Streets and Second and King Streets. This line continues into the Market Street Subway, with direct connections to the four other MUNI Metro lines (J-Church, K-Ingleside, L-Taraval and M-Ocean View).

The current availability of MUNI service capacity was analyzed in terms of a series of screenlines. The concept of screenlines is used to describe the magnitude of travel to or from the greater downtown area, and to compare estimated transit volumes to available capacities. Screenlines are hypothetical lines that would be crossed by persons traveling between downtown and its vicinity and other parts of San Francisco and the region. Four screenlines have been established in San Francisco to analyze potential impacts of projects on MUNI service: Northeast, Northwest, Southwest, and Southeast, with sub-corridors within each screenline. The screenlines are schematically illustrated and the MUNI routes crossing each screenline are listed in Appendix C, Transportation. For the purpose of this analysis, MUNI ridership measured at the four San Francisco screenlines and sub-corridors represents the peak direction of travel and patronage loads for the MUNI system which correspond with the p.m. commute outbound direction from the vicinity of the project site to other parts of San Francisco.

As a means to determine the amount of available space within each screenline the concept of capacity utilization is used, which relates the number of passengers per transit vehicle to the design capacity of the vehicle. MUNI has established a capacity utilization service standard of 1.0 which includes not only seated capacity but also a substantial number of standees, with standees representing somewhere between 30 to 80% of seated passengers, depending upon the specific transit vehicle configuration. Thus, MUNI screenlines and subcorridors at or near 100% capacity operate under noticeably crowded conditions with many standees. Because

each screenline and most sub-corridors include several MUNI lines with multiple transit vehicles from each line, some individual transit vehicles operate at or above 100% of capacity and are extremely crowded during the p.m. peak hour at their most heavily used points (i.e., screenlines), while others operate under less crowded conditions. Moreover, the extent of crowding is exacerbated whenever target headways are not met through either missed runs and/or bunching in service. Thus, in common with other types of transportation operations such as roadways and parking facilities, transit operators may experience substantial problems in service delivery well short of established service capacity standards.

A total of approximately 21,500 MUNI passengers currently cross the four San Francisco screenlines during the p.m. peak hour. All sub-corridors are currently operating within the level of service standard and have available capacity to accommodate additional passengers, although some lines and some individual vehicles are extremely crowded. The greatest capacity utilization now occurs on lines crossing the Southeast and Southwest screenlines, where between 78 and 81 % of the available capacity is now used during the p.m. peak hour.

### **Regional Transit Service**

The Alameda-Contra Costa Transit District (AC Transit) is the primary bus operator for the East Bay, including Alameda and western Contra Costa Counties, terminating at the Transbay Terminal. The Bay Area Rapid Transit District (BART) operates heavy rail passenger service in the metropolitan Bay Area. BART currently operates five lines: Pittsburg/Bay Point to Colma, Fremont to Daly City, Richmond to Colma, Fremont to Richmond, and Dublin/Pleasanton to Daly City. In downtown San Francisco, BART operates under Market Street. The BART stations nearest to the proposed project are the Montgomery Street and Powell Street stations, located 1 to 1.5 miles north of the proposed project. BART stations along Market Street can also be accessed via the MUNI Metro N-Judah line, which also operates under Market Street.



The Peninsula Commute Service (CalTrain) provides rail passenger service between San Francisco and the Peninsula. The CalTrain terminal is located immediately to the north of the proposed project, at the corner of Fourth and Townsend Streets. The San Mateo County Transit District (SamTrans) provides bus service between San Mateo County and San Francisco. SamTrans does not operate local service in the vicinity of the proposed project. All downtown SamTrans routes serve the Transbay Terminal, about one mile from the project site.

Golden Gate Transit, operated by the Golden Gate Bridge, Highway, and Transportation District (GGBHTD), provides bus service between the North Bay (Marin and Sonoma Counties) and San Francisco. Most routes serve either the Van Ness corridor of the Financial District, and 10 routes serve the Transbay Terminal. Golden Gate Transit also operates ferry services between the North Bay and the San Francisco ferry building near Market Street and The Embarcadero. In addition, the Blue & Gold fleet operates ferry service between San Francisco and Alameda/Oakland, Vallejo, Sausalito, Tiburon and Angel Island. Service is provided from the Ferry Building and Pier 39 at Fisherman's Wharf.

A screenline analysis was also performed on the regional transit carriers (AC Transit, BART, CalTrain, Golden Gate Transit and Sam Trans), in order to determine the current service volumes and capacity. Three regional screenlines have been established at the San Francisco boundaries to analyze potential impacts of projects on the regional transit carriers: East Bay, North Bay, and South Bay. The regional screenlines are schematically illustrated and the transit providers that cross each screenline are listed in Appendix C, Transportation. For the purpose of this analysis, the ridership measured at the three screenlines is in the peak direction of travel and patronage loads, which corresponds with the evening commute outbound direction from the vicinity of the proposed project to the region. Capacity utilization is used as a means to determine the amount of available space for each regional transit provider. The capacity is based on the number of seated passengers per vehicle. All of the regional transit operators except BART have a load factor standard of 1.0, which indicates that all seats are

full. BART has a three-hour performance standard of 115%, which indicates that all seats are full and an additional 15% of the seating capacity are standees (1.15 passengers per seat).

All regional transit providers operate at less than their design capacity, which indicates that seats are generally available. All of the regional transit providers, except for BART, currently operate at a load factor of less than 1.0. BART currently operates at a three-hour load factor of 112%, which is slightly less than its standard of 115%.

### **China Basin Landing Shuttle Service**

China Basin Landing provides a weekday shuttle service that connects China Basin Landing with downtown San Francisco. This free shuttle service was established in 1990 to provide service between China Basin Landing and major regional transit terminals in downtown San Francisco as a means to encourage and facilitate public transportation by employees and visitors to China Basin Landing.

Both regular and express shuttle service is provided. The regular service is provided between 7:00 a.m. and 6:30 p.m., operating at approximately 30 minute headways (although no shuttle service is provided between 3:08 and 4:10 p.m.). The express shuttle service operates during the a.m. (7:23 to 8:40 a.m.) and p.m. (3:30 to 5:53 p.m.) peak periods. There are five a.m. and six p.m. express shuttle trips.

Based on surveys of the shuttle service conducted by China Basin Landing in November/December 1998, average daily ridership on the regular shuttle is about 200 passengers, while the average daily ridership on the express shuttle is about 250 passengers. Most of the passengers are destined to and from BART (63%) and MUNI (13%), and most shuttle riders use the shuttle four or five days a week (74%).

## PARKING

Existing off-street parking conditions were examined within a parking study area generally bounded by The Embarcadero to the east, Brannan Street to the north, Fifth Street to the west, and Third/Fourth Streets to the south. The supply and occupancy of off-street parking facilities was determined for the weekday midday period between 1:00 and 3:00 p.m., based on field surveys conducted in May 1998, and January and February 1999. On-street parking conditions were qualitatively assessed during field observations.

There are 12 off-street parking facilities in the parking study area, accommodating about 1,815 parking spaces, of which 1,345 are available to the general public. The off-street occupancy is about 82% for the public facilities, and 79% for private facilities. Private facilities include parking for commercial establishments and private businesses (e.g., China Basin Landing). On-street parking is available and generally well-utilized. On Berry Street between Third and Fourth Streets, parking is not permitted along the north curb, and is restricted along the south curb adjacent to China Basin Landing. Curb regulations along the south curb include: No Parking red zones, passenger loading/unloading, truck loading/unloading and handicapped parking. There are no parking meters on Berry Street.

## PEDESTRIANS

Existing pedestrian operating conditions were calculated for all four crosswalks at the intersections of King/Third Streets and King/Fourth Streets. Pedestrian counts were obtained from the work effort conducted for the *Mission Bay Final Subsequent EIR*, which were taken on June 25, 1997. Each of the study crosswalks is 20 feet wide, except for the westside crosswalk at the intersection of King/Fourth Streets, which is 30 feet wide. Pedestrian levels of service provide a pedestrian measurement of the amount of space for each pedestrian (more space results in more comfort) and convenience (in that crowded walkways result in delay for some pedestrians).<sup>2</sup> (See Appendix C, Transportation, for a description of pedestrian LOS.)



The crosswalk analysis indicates that the four crosswalks at the two study intersections operate at LOS A conditions during the p.m. peak hour, representing unimpeded pedestrian flows.

## BICYCLES

The level of bicycle activity varies widely in and near the proposed project area, as do the types of facilities available. On-street bicycle lanes are currently provided on King Street east of Third Street, and on 16th Street from Third Street to Henry Adams Street crossing the CalTrain tracks at Seventh Street. The *San Francisco Bicycle Plan*, adopted by the San Francisco Parking and Traffic Commission and the Board of Supervisors, proposes bicycle lanes (Class II facility, separate bicycle lane adjacent to the curb lane) on Townsend Street between Fourth and Eighth Streets, Third Street between Channel Street and Le Conte Avenue, and Fifth Street between Market and Townsend Streets. Mariposa Street is designated as a Class III bicycle route (signs but no bicycle lane), as is Seventh Street between Market and Mariposa Streets, Third Street from Townsend to Channel Street, and Indiana Street south of Mariposa Street to Cesar Chavez Street.

China Basin Landing currently provides 16 bicycle racks at either end of the pedestrian courtyard, accommodating 30-40 bicycles, and a secure bicycle storage room in the Wharfside Building with space for about 50 bicycles and 16 lockers. Two shower facilities are also available in the Wharfside Building, serving tenants who bicycle to work.

## LOADING

On-street and off-street loading activities on Berry Street between Third and Fourth Streets, and on Fourth Street between China Basin Channel and Berry Street, were observed on June 16 and 24, 1999 for the 10-hour period between 7:00 AM and 5:00 p.m. On Berry Street, surveys were conducted of the activity (including double-parked vehicles) at the three loading docks (the Berry Building has three full-size loading docks and a dumpster, another loading

dock provides access to the trash compactor) and at the 11 on-street loading spaces. During the 10-hour period, 100 vehicles were observed at the off-street and on-street loading spaces, and nine vehicles were observed double-parked. The average duration of stay for the 109 vehicles was 50 minutes, although, if vehicles using the loading spaces as long-term parking spaces are not considered, the average duration of stay for the loading/unloading activity was about 30 minutes. The peak activity on Berry Street occurred between 7:00 and 8:00 a.m., and a second, smaller peak of activity occurred between 3:00 and 4:00 p.m. The majority of the trips occurred by van (57%) and pick-up (24%), with lesser percentage for trucks (12%) and autos (7%).

On Fourth Street, surveys were conducted at the four unrestricted on-street parking spaces, and at the driveway at the entrance to the courtyard. Double-parked vehicles and vehicles parked at the exit of the garage were also recorded. During the 10-hour survey period, 30 vehicles were observed at these spaces, including eight double-parked vehicles. None of the vehicles stopped in the driveway at the entrance to the courtyard blocked exiting vehicles. Peak loading activity occurred between 9:00 and 10:00 a.m., and a second peak occurred between 3:00 and 4:00 p.m. Overall, the average duration of stay throughout the day was 22 minutes. The type of vehicle using the spaces for loading/unloading was generally equally distributed between vans, pick-ups, trucks, and autos.

Total daily loading demand for the existing China Basin Landing buildings on the day of the survey was about 140 vehicles. This is similar to the number of average daily truck trips, calculated at 142, using the *San Francisco Guidelines*.

## **IMPACTS**

### **SIGNIFICANCE CRITERIA**

#### **Local Intersections**

As defined by the City and County of San Francisco, the operational impact on intersections is considered significant when project-related traffic causes the intersection level of service to deteriorate from LOS D or better to LOS E or F, or from LOS E to LOS F; interferes with existing transportation systems causing substantial alteration to circulation patterns or causing major traffic hazards; contributes substantially (“considerably”) to cumulative traffic increases at intersections that would result in deterioration of traffic conditions to unacceptable levels; or contributes substantially to cumulative traffic increases at intersections already operating at unacceptable levels.

#### **Transit**

In San Francisco, a project is typically considered to have a significant effect on the environment if it would cause a substantial project-specific or cumulative increase in transit demand that cannot be accommodated by existing or proposed transit capacity, resulting in unacceptable levels of transit service; or cause a substantial increase in operating costs such that significant adverse impacts in transit service levels could result. The project also would have a significant effect on the environment if, when considering cumulative development in the area, it would contribute substantially to the deterioration of transit service or cause substantial conflict with transit operations.



## **Parking**

*San Francisco General Plan* policies emphasize the importance of public transit use and discourage the provision of facilities that encourage automobile use. In this context, and in the context of San Francisco's high level of transit accessibility, creation of parking demand that cannot be met by existing or proposed parking facilities would not be considered a significant environmental effect. Data on unmet parking demand is presented for informational purposes. Secondary effects may result from unmet parking demand, such as a substantial alteration in neighborhood character or creation of hazardous conditions caused by illegally parked automobiles.

## **Pedestrians and Bicycles**

For this analysis, the proposed project would be considered to have a significant effect on the environment if it were to result in substantial overcrowding on public sidewalks with an unacceptable pedestrian LOS; create hazardous conditions for pedestrians or bicycles; or otherwise substantially interfere with pedestrian or bicycle accessibility to the site and to adjoining areas.

## **PROJECT TRAVEL DEMAND**

In order to estimate the number of new person-trips that would be generated by the proposed project, trip generation rates were applied to the proposed increase in square footage and calculated on a weekday daily and p.m. peak hour basis. After determining the number of person-trips generated by the proposed project, the trips were distributed to eight geographical origin/destination areas, including four San Francisco areas, three other regions in the Bay Area, and one area to include all locations outside of the Bay Area. The mode split analysis then determined the portion of these trips made via automobile, transit or any other mode of transportation, based upon the origin/destination of the trips, the purpose of the trips, and the availability of the various modes.<sup>3</sup>

The proposed project is estimated to generate a total of about 3,500 weekday daily person-trips, of which about 300 would occur during the p.m. peak hour. Of the 300 p.m. peak hour person-trips, 180 would be by auto, 60 would be by transit and 60 by other modes, including walk, bicycle and other modes. To determine the number of vehicle-trips generated by the proposed project, the number of auto person-trips was divided by the average vehicle occupancy. The 180 p.m. peak hour auto-person-trips represent 140 vehicle trips.

About half of the person-trips generated by the proposed project would come from areas within San Francisco, with about 15 to 20% from the East Bay and South Bay, and decreasing percentages from the North Bay and out of the region. These distribution patterns were used as the basis for assigning project-related trips to the local streets in the study area.

The proposed project would generate a total parking demand for about 360 spaces. The majority of the demand (approximately 90%) would be long-term (employee) parking.<sup>4</sup>

The proposed project would generate approximately 41 delivery/service trips per day.<sup>5</sup> This corresponds to loading demand for 2.4 spaces during the peak hour, or 1.9 spaces during an average hour. It is anticipated that the delivery/service vehicles that would be generated by the proposed project would mostly consist of small trucks and vans.

## **EXISTING-PLUS-PROJECT CONDITIONS**

To isolate potential impacts of the project on traffic, transit use, and parking, project-generated activities were added to the existing transportation conditions. The resulting “existing-plus-project” scenario does not include activities generated by other projects that are under construction or planned for the area surrounding the project site. These other projects are analyzed, in combination with the proposed project, in the analysis of cumulative conditions, discussed below beginning on p. 75.

## Traffic

The intersection analysis assesses potential traffic impacts resulting from the addition of project-generated vehicle trips to the existing intersection conditions. The proposed project would generate 5 inbound and 135 outbound vehicle-trips during the p.m. peak hour. Table 2 presents the intersection LOS analysis results. In general, the addition of project-generated traffic would result in a minimal change in average vehicle delay at the study intersections. All study intersections would continue to operate at the same service levels as under existing conditions, and average delay per vehicle would generally increase by about one second. The project would not cause significant traffic impacts.

## Transit

The proposed project would generate about 60 transit trips (6 inbound and 54 outbound) during the weekday p.m. peak hour. It was estimated that approximately 90% of the project-generated transit trips would use MUNI within San Francisco, or to access the regional transit operators (such as BART, AC Transit, SamTrans and Golden Gate Transit), and the remaining 10% would use CalTrain.

Of the 54 outbound transit trips, about 34 would cross one of the four MUNI screenlines. The addition of the project-related riders to the four MUNI transit screenlines would not increase the number of passengers enough to substantially change the peak hour capacity utilization. Capacity utilization for all screenlines would remain similar to those under existing conditions. All screenlines and sub-corridors would continue to operate below the MUNI standard of 1.0, and the project would not cause significant impacts on MUNI. The project site is within the area subject to the Transit Impact Development Fee. Therefore, the project sponsor would contribute funding to improve MUNI service in the downtown and vicinity.



**TABLE 2**  
**INTERSECTION LEVELS OF SERVICE**  
**PM PEAK HOUR**

Intersection	Existing		Existing plus Project		2015 Cumulative	
	Delay <sup>1</sup>	LOS	Delay <sup>1</sup>	LOS	Delay <sup>1</sup>	LOS
Berry/Third	8.1	B	8.8	B	11.6	B
Berry/Fourth	5.0	B	6.5	B	31.2	D
King/Third	27.9	D	30.9	D	> 60	F
King/Fourth	38.2	D	38.4	D	37.2	D
Townsend/Third	18.6	C	18.4	C	29.3	D
Third/Fourth/ Mission Rock	7.9	B	8.0	B	--	--
Third/Owens <sup>2</sup>	--	--	--	--	12.1	B
Fourth/Owens <sup>2</sup>	--	--	--	--	26.3	D

*Notes:*

- (1) Delay presented in seconds per vehicle.
- (2) New intersection created by Mission Bay due to the reconfiguration of the street network south of the Channel, which will replace the intersection of Third/Fourth/Mission Rock with Third/Owens and Fourth/Owens.

*Source:* Wilbur Smith Associates, August 1999

It is estimated that approximately 12 transit trips would be destined to the East Bay, 2 to the North Bay, and 6 to the South Bay. The addition of project-related passengers on the regional transit providers would not have a substantial impact during the p.m. peak hour. Capacity utilization for all screenlines would remain similar to existing conditions. Thus, the project would not have a significant impact on regional transit systems. Both with and without the project, BART to the East Bay would operate at over 120% of capacity during the weekday p.m. peak hour; however, under either condition, the three-hour load factor would be 112 %, slightly better than the service standard of 115%.

## Parking

The project's additional office space would require provision of 329 parking spaces pursuant to Planning Code Section 151. The proposed project would generate a total parking demand for about 360 spaces, of which 320 would be required to accommodate long-term demand, and 40 for short-term demand. Since the proposed project would not provide off-street parking spaces, there would be a shortfall of about 360 spaces relative to demand. The existing China Basin Landing complex currently operates under a parking variance that requires 533 off-site spaces within 1,500 feet of the building site. Either a new variance or a modification of this existing variance would be required to permit the proposed office space addition without provision of 329 new on-site parking spaces. Proposed changes to the Planning Code in the Ballpark Vicinity Special Use District Permanent Zoning Controls (Ballpark Vicinity SUD), if adopted, would change the parking requirements for the project site, reducing the requirement from 329 to 220 spaces, and providing for an exception to the parking requirements pursuant to Code Sections 161(l) and 307(g). Other provisions of the Ballpark Vicinity SUD, such as FAR, height limits, loading requirements, and allowable land uses, applicable to the project site would not change from existing controls. Therefore, the project would comply with all of the SUD requirements except parking.

A portion of the unmet parking demand could be accommodated on-street or in other off-street facilities. However, existing on-street and off-street occupancy is high, and would not be able to accommodate a substantial amount of the shortfall. Some of the parking demand may be accommodated in proposed structures that would have available spaces (e.g., new buildings in the Mission Bay North Redevelopment Area, or in 160 King Street and 475 Brannan Street, if these buildings are approved and built).

Any unmet demand may result in additional traffic congestion as drivers circle around the area to find available off-street or on-street spaces, and some drivers may shift to transit, carpools or other modes of travel. However, it is not expected that this shortfall in parking would

result in unsafe conditions due to illegal parking, or in a substantial alteration of the adjacent neighborhood character. Therefore, the project would not create significant secondary impacts related to parking demand.

### **Pedestrians**

Pedestrian trips generated by the proposed project were assigned to the two study crosswalk locations. Estimates of the project-generated pedestrian volumes assigned to the crosswalks include trips by walk and other modes (60 trips), as well as trips by auto or public transit that would walk between the proposed project and off-site parking or transit stops. The addition of the project-generated pedestrian traffic would not substantially affect the crosswalk operating conditions at the study locations, and all crosswalks would continue to operate at LOS A.

### **Bicycles**

The proposed project would result in an increase in bicycle activity in the area. A portion of the 60 walk/other trips that would be generated by the proposed project during the p.m. peak hour would be new bicycle trips to the area. China Basin Landing currently provides accommodations for about 90 bicycles including up to 40 bicycles at either end of the pedestrian courtyard and 50 bicycles within an on-site secure bicycle storage room in the Wharfside Building. The facilities exceed the current requirements for bicycle spaces, and have capacity to accommodate the anticipated increase in bicycle parking demand associated with the proposed project. In addition 16 lockers and two shower facilities are available to building tenants.

While the proposed project would result in an increase in the number of vehicles in the vicinity of the proposed project, this increase in itself would not be substantial enough to affect bicycle travel in the area. Therefore, no significant impact on bicycle access would result.



## **Loading**

The proposed project would generate a loading demand for 1.9 spaces during an average loading hour and 2.4 spaces during the peak loading hour. The project's additional office space would generate 41 daily truck trips. In total, the proposed project and the existing office uses at the Berry and Wharfside Buildings (a total of 883,230 gsf) would generate about 183 daily truck trips. This corresponds to a loading demand for about 9 spaces during an average loading hour, and about 11 spaces during the peak loading hour.

The proposed project would not change the loading supply for the Berry Building. Both the existing and new office uses would use the three off-street loading docks and the 11 on-street yellow loading spaces on Berry Street. Planning Code Section 152 may require one loading space for the approximately 193,600 gsf of additional office space. Provisions in the proposed Ballpark Vicinity SUD would permit substitution of two van loading spaces for one full-sized loading space. If an additional loading space is required for the project, the sponsor would provide two van loading spaces in the proposed garage, assuming approval of the Ballpark Vicinity SUD. Based on surveys of loading activities on Berry Street conducted in June 1999, available capacity currently exists in on-street and off-street loading spaces to accommodate the increased demand from the project, without additional loading facilities.

## **Construction**

Construction of the proposed project would start in spring 2000 and take approximately 14 to 16 months. The construction of the proposed project would be accomplished in four basic stages: seismic strengthening of the existing Berry Building, construction of the new structural superstructure, construction of the exterior skin and building core, and interior tenant improvements. During all stages of work, there would be a flow of trucks into and out of the construction site. The number of trucks per day would vary by construction phase, and would range from 10 to 24. The peak period in terms of truck trips would occur during the

construction of the exterior skin and building core and during the tenant improvements, where there would be an estimated 24 truck trips per day. These truck trips would occur over the course of the day.

Construction-related activities would typically occur Monday through Friday, from 7:00 a.m. to 3:00 p.m. Some construction would occur during the night (6:00 p.m. to 12:00 a.m.) or on weekends to avoid disruption to tenants. Construction staging would occur primarily in the courtyard between the Wharfside Building and the Berry Building. Trucks would enter the courtyard from Third Street and exit onto Fourth Street. On Berry Street, the parking lane would be used for truck parking and a holding area. Staging from Third and Fourth Streets would be minimal, only to occur on an as-needed basis. If the overhead power line were to be removed from Berry Street, the majority of the project staging would then occur from Berry Street.

On Berry Street, adjacent to China Basin Landing, a protective barricade would be erected along the sidewalk and the parking lane would be closed for truck parking, with an opening provided in the barricade to allow access to the building loading docks. The barricade would protect pedestrians from construction staging activities and the Berry Street sidewalk would remain open. It is anticipated that the parking lane closure would be necessary for the duration of the construction, and truck deliveries to the building would be temporarily more difficult. During construction, the area between the Wharfside Building and China Basin Channel adjacent to Fourth Street would be used for loading and deliveries for the China Basin Landing complex in place of the on-street loading spaces on Berry Street. This area is accessible via a curb cut on Fourth Street and is occasionally used for deliveries to the Wharfside Building under existing conditions.

No lane or sidewalk closures are expected on Third or Fourth Streets. However, if temporary traffic lane closures were determined to be needed, they would be coordinated with the City in order to minimize the impacts on local traffic. In general, lane and sidewalk closures are

subject to review and approval by the Department of Public Works (DPW). Lane closures for construction activities are likely to be prohibited on event days at Pacific Bell Park, similar to the existing restrictions on streets around 3Com Park.

The number of construction workers per day would range from 25 workers (during Phase 1) to 110 workers (during Phase 4). There would be a temporary parking demand by construction workers. Construction workers would park in off-site parking facilities or possibly on-street in areas south of China Basin Channel where there are no parking meters.

Construction would be a short-term activity in the project area and would not cause significant transportation impacts.

## **FUTURE CUMULATIVE TRANSPORTATION CONDITIONS**

### **Future Context**

Future Year 2015 Cumulative traffic volumes were based on the work effort for the Mission Bay Final Subsequent EIR. The Mission Bay development of future Year 2015 background conditions was based on the Metropolitan Transportation Commission's (MTC) regional travel demand model, which was adjusted in 1997 to reflect recent development plans for a number of large projects within San Francisco, including the Mission Bay development, the Transbay Terminal Area Plan and the Giants Ballpark. The base growth from existing conditions to 2015 in the MTC model is taken from the Association of Bay Area Governments (ABAG) growth forecasts. The Year 2015 Cumulative conditions were analyzed for the Combination of Variants Under Consideration by the Mission Bay Project. This variant evolved from responses to public comments and refinements to the project made by the Catellus Development Corporation following publication of the Draft SEIR. This combination of variants is very similar to the development program ultimately approved in the Mission Bay North and Mission Bay South Redevelopment Plans.



Mission Bay, the Pacific Bell Park and the Third Street Light Rail projects would change the transportation conditions in the vicinity of China Basin Landing, which are included in the analysis of traffic effects from cumulative growth in 2015.

### Mission Bay

The Mission Bay Redevelopment Plans call for several changes to the existing transportation network, including the vehicular, pedestrian and bicycle facilities. Berry Street between Third and Fourth Street will have one eastbound and one westbound lane, a reduction from the two existing eastbound lanes. At the eastbound approach to Third Street, Berry Street will continue to have a through and a right turn lane. At the westbound approach to Fourth Street, Berry Street will be restriped to provide for two westbound lanes (a through -left lane and a right-turn lane). The I-280 off-ramp touch-down at King Street will be restriped to accommodate an additional eastbound through lane without modification to the existing ramps structure. Fourth Street south of the Channel will no longer intersect with Third Street, but will run south parallel to Third Street, ending at Mariposa Street. In addition, as Mission Bay builds out, improvements will be implemented at intersections on King and Berry Streets to accommodate the vehicle trips generated by Mission Bay. The following improvements will be made to the study intersections:

Berry and Third Streets: The northbound approach will be restriped to provide an additional through lane, and the existing traffic signal will be reconfigured.

Berry and Fourth Streets: The westbound approach is planned to be restriped to provide an additional lane, the northbound approach will be restriped to provide an additional left turn lane, and the existing traffic signal will be reconfigured.

King and Third Streets: The northbound approach will be widened on the west side to provide an additional through lane, and the existing traffic signal will be reconfigured.

King and Fourth Streets: The eastbound approach is planned to be widened to provide an exclusive right turn lane and the existing traffic signal will be reconfigured.

Widening of the southbound approach to provide an additional lane.

Third and Fourth/Mission Rock Streets: The reconfiguration of the street network south of the Channel will replace the intersection of Third and Fourth/Mission Rock Streets with Third/Owens and Fourth/Owens.

Third Street/Townsend Street: On-street parking on the westbound approach of Townsend Street will be prohibited during the p.m. peak commute period, and an additional westbound through lane will be provided during the p.m. peak commute period.

#### Pacific Bell Park

The Pacific Bell Park, currently under construction in the area immediately northeast of China Basin Landing, is bounded by King Street, Third Street, the Channel and South Beach Park. The *San Francisco Giants Ballpark at China Basin EIR*, certified in June 1997, considered the transportation impacts of the ballpark in the context of cumulative future growth. Events at the ballpark will not occur every day and when they occur, transportation impacts will be most severe prior to and at the conclusion of the event. Events will be scheduled to avoid start times or end times that would generate substantial transportation demand during the weekday peak hour of the evening commute period, generally 4:30 to 5:30 p.m. The greatest impact of the ballpark would occur after weekday afternoon high-attendance events, during the 3:30 to 4:30 p.m. period, when traffic, transit and pedestrian flows exiting the ballpark would coincide with the early commute period demand already on the transportation network before the peak commute hour. Patrons traveling to and from a high-attendance event at the ballpark would contribute to substantial congestion on MUNI routes and on local streets near the ballpark parking areas before and after the event.

Events at the ballpark would generate parking demands ranging from 8,530 spaces for the weekday afternoon high-attendance game, to 10,590 spaces for a weeknight game or event. The Giants will provide approximately 5,000 spaces on lands owned by the Port of San Francisco and Catellus Development Corporation immediately south of China Basin Channel: these spaces are not presently proposed to be available to non-baseball park users. Any

parking demand not satisfied will have to be served by the available on- and off-street parking, mainly in the South of Market and South Beach areas.

At the time the Ballpark EIR was prepared, in 1997, sufficient parking was available within an approximate 20-minute walk from the ballpark site, primarily close to Mission Street north of the ballpark and in the Sixth Street area west of the ballpark, to satisfy the weekday afternoon parking demand.<sup>6</sup> For weeknight and weekend high-attendance events, there would be sufficient off-street parking within a 15-minute walking distance to satisfy the demand from the ballpark, with little or no surplus. Thus, on weekday afternoons and evenings, and on weekends, when sold-out or nearly sold-out games or other events occur at the ballpark, there would be little or no parking available in the area surrounding the China Basin Landing buildings beyond that reserved for use by China Basin Landing tenants in compliance with the China Basin Landing parking variance. Many ballpark patrons would attempt to use on-street parking in Mission Bay if longer term parking were made available on any Mission Bay streets, until the area is fully developed. Upon full development of the Mission Bay Redevelopment Areas north and south of the China Basin Channel, there would be a parking shortfall of about 4,000 spaces on weekdays.<sup>7</sup> Thus, it is not likely that Mission Bay will be a substantial source of parking for ballpark patrons for weekday afternoon events once buildout of the Mission Bay Redevelopment Areas has occurred. On days when high-attendance events are scheduled at the ballpark, those arriving in the China Basin Landing area after drivers begin arriving for the event would have difficulty parking within a 15-minute walking distance of the buildings.

### Third Street Light Rail Project

The Third Street Light Rail will operate along Bayshore Boulevard and Third Street, between the CalTrain Bayshore Station and downtown San Francisco and will replace the existing MUNI 15-Third bus line. As the light rail approaches China Basin Landing from the south along Third Street, both directions of the light rail will turn west onto new Owens Street from



Third and then travel across the Fourth Street bridge to King Street, where it will connect with the existing light rail tracks. A station located on Fourth Street between King and Berry Streets will provide direct access to China Basin Landing.

## Traffic

Table 2, p. 70, presents the 2015 Cumulative LOS operating conditions at the study intersections. The LOS analysis assumed full buildout of Mission Bay and the improvement and mitigation measures that will be implemented by Mission Bay and the Third Street Light Rail project (see above discussion of improvements). Under 2015 conditions, only one of the seven study intersections, at King and Third Streets, would operate at LOS F, while the remaining intersections would operate at LOS D or better.

In order to assess the effect of project-generated traffic on 2015 Cumulative conditions, the proposed project's contribution to the 2015 Cumulative traffic volumes was determined. Two contributions were calculated: the project-generated traffic as a percent of total 2015 Cumulative traffic volumes, and the project-generated traffic as a percent of only the increase in traffic volumes between Existing and 2015 Cumulative conditions, *excluding* the growth in traffic associated with development at Mission Bay. The percent contribution was calculated at the key study intersections of King/Third and King/Fourth. At these two study intersections, the project-generated traffic would represent less than 1.0 % of the total 2015 volumes, and between 8 and 14% of the cumulative growth in traffic volumes between Existing and 2015 conditions, excluding the growth due to Mission Bay. The project's contribution to cumulative traffic impacts would not be considerable; the intersection levels of service in 2015 shown in Table 2 would occur with or without the project. Therefore, the project would not result in a significant effect on local traffic.

## Transit

Future year 2015 cumulative conditions at the transit screenlines are based on the work conducted for the Transbay Terminal Redevelopment Area Plan Transportation Study and the Mission Bay Final Subsequent EIR, updated to reflect 1997/1998 ridership data. Between Existing and 2015 Cumulative conditions, ridership at the MUNI screenlines is projected to increase by about 10,500 passengers, while capacity is projected to increase by 2,200 passengers. The projected ridership is expected to approach or exceed the capacity at all screenlines, creating unacceptably crowded conditions on most bus and light rail lines. The 34 transit trips generated by the proposed project that would cross the MUNI screenlines would have a minimal contribution to the cumulative transit ridership, and alone would not substantially affect the peak hour capacity utilization of each screenline. Therefore, the project would not contribute to cumulative impacts on MUNI.

Between Existing and 2015 cumulative conditions, regional transit ridership is projected to increase by about 10,000 passengers at the East Bay screenline, by about 1,000 passengers at the North Bay screenline, and by about 6,000 passengers at the South Bay screenline. In addition, capacity is anticipated to increase on BART, CalTrain and the Golden Gate Transit ferries. The projected ridership is expected to exceed the capacity at the East Bay screenline, whereas the North Bay and South Bay screenlines would operate at less than 100% of capacity. For the 2015 cumulative conditions, BART to the East Bay would operate with a three-hour performance standard of 114%, slightly less than the 115% standard. AC Transit would operate with a capacity utilization of 135%, primarily due to the fact that no capacity increases for the Transbay routes have been programmed by AC Transit. It is anticipated that overcrowded conditions and substantial delays per passengers would result. Continued growth in demand for AC Transit service may prompt a re-evaluation of the service provided.<sup>8</sup> The proposed project would have a minimal contribution to the cumulative transit ridership (less than one percent), and alone would not substantially affect the peak hour capacity utilization of

each screenline. Therefore the project would not contribute considerably to cumulative impacts on regional transit systems.

### **Game Day Conditions**

During the 4:30 to 5:30 p.m. hour after a high-attendance weekday event at the ballpark, intersections near the China Basin Landing buildings would operate at LOS F with substantial delays.<sup>9</sup> For example, Townsend and Third Streets would operate at LOS F, compared to LOS D on non-event days in 2015; Berry and Third Streets would also operate at LOS F. Intersections along Third Street north and south of the project site would be congested, as would freeway ramps. Motorists choosing to leave the project site during the hour following a weekday event at the ballpark would experience substantial delays compared to a typical weekday afternoon.

Weekday afternoon high-attendance events at the Giants ballpark, generally expected to end by about 3:30 p.m., will add to the demand for transit service in the hour before the afternoon peak.<sup>10</sup> The main bus and Metro lines serving the project site are expected to exceed maximum load standards. Riders from the proposed project could find it difficult to use MUNI during the early commute period. CalTrain is also expected to be used by large numbers of persons attending ballpark events; additional capacity will be needed during the early commute period, and commuters from the proposed project would find trains more crowded than during normal commute periods. Other regional carriers are expected to have capacity to accommodate the increased patronage after weekday afternoon events, although the systems will be more crowded than on a typical weekday afternoon.

### **Parking**

By 2015, the parking demand in the vicinity of the China Basin Landing project is expected to increase due to substantial additional development in Mission Bay and on sites outside of



Mission Bay along King and Townsend Streets. The Mission Bay Subsequent EIR indicates that upon buildout of the Redevelopment Plans, there would be an unmet demand for parking in the Mission Bay area of up to about 4,700 spaces, plus the demand from the 533 spaces presently leased to China Basin Landing, for a total demand of over 5,000 spaces.<sup>11</sup> The unmet parking demand in Mission Bay North plus that from China Basin Landing, including the proposed expansion, would be about 2,000 spaces. About 1,000 on-street parking spaces in Mission Bay South would accommodate only a portion of the unmet demand in that area; no new on-street parking is expected to be provided in Mission Bay North.

Although several proposed projects in the vicinity of China Basin Landing include new parking, and about 177 new parking spaces are proposed to be added at China Basin Landing as part of a separate project, the overall demand in the area is expected to exceed supply in the future. Also, demand for new and expanded parking facilities is likely to increase. Thus, by 2015, parking in the vicinity of China Basin Landing would be difficult for many motorists to locate. Some motorists would search for parking in the adjacent South of Market neighborhood, further away from the China Basin Landing site; others might find it more convenient to use transit to access the site. As discussed above under "Pacific Bell Park," when high-attendance events are scheduled at the ballpark, parking will be in great demand and visitors or employees driving to the project vicinity would have difficulty parking unless they have reserved spaces. Parking shortfalls relative to demand are not considered significant environmental impacts in San Francisco. Parking deficits are considered an inconvenience to drivers, but not significant physical impacts on the environment. In support of the City's "Transit First" policy, priority is given to transit improvements before developing transportation improvements that encourage the use of the automobile.

## **Loading**

The roadway improvements associated with the Mission Bay development include the reconfiguration of Berry Street between Third and Fourth Streets. Berry Street will contain

one lane in each direction, with three lanes at the approaches to Third and Fourth Streets. In addition, on-street parking will be reconfigured. The total number of on-street loading spaces on Berry Street will be reduced from 11 to 5, with two additional spaces available at times other than the 7:00 to 9:00 a.m. drop-off and 4:00 to 6:00 p.m. pick-up activities at a child-care center planned on the block directly north of the proposed project site. Following construction of the Third Street Light Rail Project, the two existing on-street passenger loading spaces and four unrestricted spaces on Fourth Street between Berry Street and China Basin Channel will be eliminated, and will be replaced with a loading zone that could accommodate about two vehicles.

Total loading demand from the China Basin Landing buildings, including the project, would be about 9 spaces during an average loading period and about 11 spaces during the two peak loading hours of 7:00 to 8:00 a.m. and 3:00 to 4:00 p.m. The morning peak loading hour overlaps with the morning drop-off period of 7:00 to 9:00 a.m. for the child-care center planned across Berry Street from the project; the afternoon peak loading hour does not overlap with the 4:00 to 6:00 child-care pick-up period. With the reduction in on-street loading spaces on Berry and Fourth Streets to 7 spaces during the morning and afternoon pick-up and drop-off periods, and 9 spaces during other times of the day, total loading spaces available to China Basin Landing including the 3 existing loading docks would be 10 spaces during the morning peak loading period and 12 spaces during the afternoon peak loading period. Thus, the 9-space average loading demand would be met by the combination of 9 on-street spaces and 3 off-street spaces. The afternoon peak-hour loading demand for 11 spaces would also be met, as all 9 on-street spaces would be available during the 3:00 to 4:00 p.m. peak loading demand hour. The morning peak loading demand for 11 spaces would not be met by the 10 on- and off-street loading spaces that will be available during the 7:00 to 9:00 a.m. period. If an additional loading space is required under the Planning Code, van loading spaces would be provided in the proposed garage; under this condition, the project would meet the morning peak loading demand.

The reduction in the number of on-street spaces that are currently used for parking and loading/unloading activities on Berry Street and Fourth Street would increase the potential for double-parking on Berry Street, potentially impacting traffic circulation, during the morning peak traffic period and the peak child-care drop-off period. It is not expected that vehicles would double park on Fourth Street adjacent to the project site because double-parked vehicles would block Third Street Light Rail vehicles. Double parking on either side of Berry Street would force vehicles to pull into the opposite lane to pass the double parked vehicle. While not considered a significant impact because of the relatively low traffic volumes, these vehicles could interfere with drop-off traffic at the child-care center on the north side of the street. Enforcement of the double-parking prohibition and enforcement of 30-minute loading zone parking time limits by installation of on-street meters with signage, would avoid interference with local traffic circulation and would avoid the need for eastbound vehicles to pull into the westbound lane, potentially near the child-care drop-off area, to pass double-parked vehicles. The van loading spaces that would be provided in the parking garage would reduce the likelihood of double parking on Berry Street.

## Construction

Construction activities associated with the proposed project would likely occur at the same time as other ongoing and proposed projects in the vicinity of the site. The construction activities associated with these projects would affect access, traffic operations, bus operation and pedestrian movements. Projects include:

Construction of the Pacific Bell Park started in late 1997, and is anticipated to be completed by opening day in April 2000. A substantial portion of the superstructure phase should be completed prior to the start of construction of the proposed project.

Development within the Mission Bay area with full buildout anticipated sometime after year 2015. Construction will occur in several phases. Exact timing of construction of each phase is not available. Construction of retail uses on the block bounded by Third, Fourth, Berry and King Streets would eliminate the existing off-street surface parking facility used by China Basin Landing, and would result in increased congestion in the immediate vicinity of China Basin Landing during the construction period.



Retrofit of the superstructure of the western span of the Bay Bridge will start in late 1999 and last about two years, and the retrofit of the western approach of the Bay Bridge will begin in 1999 and continue into 2004. The retrofit activities could potentially result in additional vehicles temporarily using I-280 and therefore an increase in congestion in the vicinity of the on- and off-ramps at King Street.

The construction cycles and amount of construction-related traffic on streets near the proposed project from each of these projects, including the proposed project at China Basin Landing, would differ depending on the location and scale of the project. Each individual project sponsor would work with various departments of the City (Department of Parking and Traffic, MUNI, the Fire Department, etc.) to develop a detailed and coordinated plan that would address construction vehicle routing, traffic control and pedestrian movement adjacent to each construction area.

## INTERIM YEAR CONDITIONS

In order to evaluate the combined effects of a number of recent development projects within the China Basin / South Beach area, an interim year analysis was performed for traffic, transit and parking conditions.<sup>12</sup> The analysis included those projects currently undergoing environmental review, along with other projects that are already under construction or have recently been approved. Within the study area bounded by I-80 to the north, Sixth Street to the west, the China Basin Channel to the south, and San Francisco Bay to the east, a total of 14 development projects were identified. These projects include two blocks of the Mission Bay development (blocks N1 and N2, between Berry and Townsend Streets) and Pacific Bell Park, plus various office, residential, retail and commercial developments. Additional projects that filed for environmental review after the interim year analysis was completed in mid-1999 have not been included in this analysis but are accounted for in the 2015 cumulative analysis.

The impacts associated with the selected list of Interim Year projects are accounted for in the results of the analysis of 2015 cumulative conditions conducted as part of the Mission Bay Final SEIR and reported on pp. 75-79, above. However, due to the concentration of these

projects, in terms of location and time frame, the interim year analysis was conducted to determine whether the projects may require near-term improvements that were not anticipated to be needed until 2015, or whether some of the results estimated for 2015 cumulative conditions may be exceeded.

In general, the analysis indicates that the Interim Year projects would not substantially affect the transportation system.<sup>13</sup> Vehicles generated by the Interim Year projects would increase delays at the 22 interim study intersections; however, the majority would operate at LOS D or better. The exceptions are the intersections of Third and Brannan Streets and Second and Brannan Streets, which would operate at LOS F. These intersections could be mitigated to LOS D with improvements in the form of restriping (to provide left turn pockets) and signal modifications. Traffic from the China Basin Landing Building Expansion project would disperse throughout the local street grid, and would contribute smaller amounts of traffic to intersections further from the project site. The intersections at Third and Brannan Streets and Second and Brannan Streets are beyond the project traffic study area and would receive minimal amounts of traffic from the proposed project.

Traffic operating conditions at the study intersections would be better under interim year conditions than under the 2015 cumulative conditions. The total intersection volumes under the interim year conditions would be lower than those for the 2015 cumulative conditions, with Interim Year projects representing 10 to 70% of the growth in traffic volumes at the study intersections.

Adequate capacity exists on the MUNI lines serving the study area (15-Third, 30-Stockton, 42-Downtown Loop, 45-Union-Stockton, and the N-Judah) and on the regional service providers to accommodate the new interim year transit demand. Between Existing and 2015 Cumulative conditions, Interim Year projects account for about 25% of the growth in MUNI passengers, with 73% attributed to Mission Bay (less N1 and N2 components included in the Interim Year projects) and the remainder to other developments in the area (2%). Capacity would exist on

the MUNI lines to accommodate additional growth in the area for the Interim Year projects. Of the growth in regional transit trips between existing and 2015 cumulative conditions, Interim Year projects account for about 2%, Mission Bay (less N1 and N2 components included in the Interim Year projects) for about 8%, and other projects primarily in the downtown area account for the remainder (about 90%).

With the addition of the Interim Year projects, there would be total supply of about 6,485 parking spaces and demand for about 7,357 spaces in the study area. Overall, there would be a parking utilization of 114%, representing a shortfall of 872 spaces. This parking shortfall does not include the spaces that would be lost to the freeway retrofit project. If the Interim Year conditions overlap with the retrofit project, the parking shortfall would be greater. These parking conditions may lead to an increase in traffic congestion, as drivers may circle the block looking for parking. In addition, some drivers may switch modes (to transit, car pool or other). In order to reduce the parking shortfall, it may be necessary to construct additional parking facilities or increase the parking supply in existing (e.g., via valet parking) and proposed facilities.

The effects associated with the Interim Year projects were evaluated without considering additional development outside the study area or projects in the study area that applied for Planning Department review after the interim year study began, both of which may also use the study roadways, transit lines and parking supply. If the additional traffic volumes, transit ridership, and parking demand of these developments were incorporated into the interim year analysis, the conditions most likely would worsen.



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NOTES - Transportation

1. The discussion and analysis presented in Section III.C, Transportation, is based on the *China Basin Landing Transportation Study*, September, 1999, prepared by Wilbur Smith Associates. This report is on file and available for review at the offices of the San Francisco Planning Department, 1660 Mission Street, San Francisco.
2. The method used to determine pedestrian level of service (LOS) is described in *Urban Space for Pedestrians*, MIT Press, 1975. At crosswalk locations, the signal timing affects the flow rate calculation, as do the pedestrian volumes and crosswalk width. The walk time that is available for pedestrians varies depending on the time of day. Thus, a lower volume in a particular crosswalk could have a worse level of service if it also has less green signal time available. A detailed description of a pedestrian LOS is presented in Appendix C.
3. The person-trip generation was based on typical office use rate developed by the City and County of San Francisco Planning Department, as published in the *SF Guidelines*. Mode split, average vehicle occupancy (AVO) information and the geographic distribution of employee and visitor trips to and from the proposed project was based on supplemental information to the *Citywide Travel Behavior Survey* for work and visitor trips.
4. Parking demand for the proposed project was estimated based on the estimated auto trips, vehicle occupancy rates, number of employees and parking turnover rates. Parking demand was estimated for both long-term demand (typically employee) and short-term (visitors and patrons). Long-term parking was estimated by determining the number of employees for each land use and applying the average mode split and vehicle occupancy values.
5. Freight delivery and service vehicle demand was estimated based on the methodology and truck generation rates presented in the *SF Guidelines*.
6. San Francisco Planning Department, *San Francisco Giants Ballpark at China Basin EIR*, Planning Department File No. 96.176E, State Clearinghouse No. 96102056, certified June 1997, pp. IV.209 - IV.212.
7. San Francisco Planning Department, *Mission Bay Subsequent EIR*, Planning Department File No. 96.717E, State Clearinghouse No. 97092068, certified September 1998, pp. V.E.95 - V.E.100.
8. The AC Transit Board has approved three phases of service improvements to be implemented in 1998-1999. Phase 1, implemented in June 1998, involved minor changes to the Transbay routes serving Richmond, El Cerrito and Hayward. Phase 2, implemented in October 1999, included changes to the Transbay routes serving Berkeley, Emeryville, and Oakland, with route extensions, additional trips, additional stops, rerouting of some lines, removal of two routes and addition of two other routes. Phase 3, scheduled to be implemented in December 1999, will establish a new route between San Francisco, downtown Oakland, and the Oakland International Airport. The effects of these changes, as well as any effects of the February 1999 fare increase, have not been incorporated into the regional screenline analysis.
9. The information in this paragraph is summarized from Section IV.E, Transportation and Circulation Impacts in the *San Francisco Giants Ballpark at China Basin Final EIR*, Planning Department Case No. 96.176E, State Clearinghouse No. 96102056, certified June, 1997.

10. The information in this paragraph is summarized from Section IV.E, Transportation and Circulation Impacts in the *San Francisco Giants Ballpark at China Basin Final EIR*, Planning Department Case No. 96.176E, State Clearinghouse No. 96102056, certified June, 1997.
11. San Francisco Planning Department, *Mission Bay Subsequent EIR*, Planning Department File No. 96.771E, State Clearinghouse No. 97092068, certified September 1999, pp. V.E.95-V.E.101.
12. Results of the Interim Year analysis are documented in the technical memorandum *China Basin / South Beach Area Interim Year Study*, June 1999, available for review at the San Francisco Planning Department offices, 1660 Mission Street, San Francisco.
13. The analysis included use of standard trip-generation factors for all proposed land uses associated with the Interim Year projects. The resultant trips were distributed by mode (auto, transit, walk/other) to the four quadrants of the City and to the rest of the region based on the methodology presented in the *San Francisco Guidelines for Environmental Review: Transportation Impacts*, and supplemented with information from the *Citywide Travel Behavior Survey*.

## D. AIR QUALITY

### SETTING

#### APPLICABLE PLANS AND REGULATIONS

##### Ambient Air Quality Standards

Federal, state, and local laws and regulations form the foundation for controlling air pollution. The federal Clean Air Act, including amendments of 1990, and the California Clean Air Act of 1988 specify that federal and state regulatory agencies set upper limits on the airborne concentrations of six criteria air pollutants. National Ambient Air Quality Standards exist for ozone, carbon monoxide (CO), nitrogen dioxide (NO<sub>2</sub>), sulfur dioxide (SO<sub>2</sub>), particulate matter, and lead.<sup>1</sup> Reactive organic gases (ROG) and oxides of nitrogen (NO<sub>x</sub>) are also regulated as precursor contaminants that react under certain atmospheric circumstances to form ozone, and particulate matter is regulated as inhalable particulate matter less than ten microns in diameter (PM<sub>10</sub>).

The federal and state standards for these pollutants are summarized in Appendix D. The standards are upper limits designed to protect all segments of the population including those most susceptible to the pollutants' adverse effects (e.g., the very young, the elderly, people weak from illness or respiratory diseases, or persons doing heavy work or exercise).

##### Air Quality Management Plans

The federal Clean Air Act, as amended, and the California Clean Air Act provide the legal framework for attaining and maintaining the ambient air standards. Both the federal and state acts require that the California Air Resources Board designate as "nonattainment areas" portions of the state where federal or state ambient air quality standards are not met.



Where a pollutant exceeds standards, the acts require implementation of air quality management plans that demonstrate how standards will be achieved. These laws also provide the basis for the local agencies to develop mobile and stationary source performance standards.

The Bay Area Air Quality Management District (BAAQMD) is the primary agency responsible for planning, implementing, and enforcing federal and state ambient standards in the Bay Area. In 1999, the BAAQMD prepared revisions to the region's State Implementation Plan (SIP) for ozone. The SIP revision was required for the region because of exceedances of the federal ozone standard. The SIP is a compilation of plans and regulations that govern how the region and state will comply with the federal Clean Air Act requirements to attain and maintain the ozone standard. Along with the BAAQMD, the Metropolitan Transportation Commission and the Association of Bay Area Governments also contribute to the SIP revision process. The state ozone and PM<sub>10</sub> standards are also exceeded in the region. Because of the ozone violations, the BAAQMD is required to prepare a Clean Air Plan to attain the state standard. Maintenance of the ozone standard is required to be addressed every three years in revisions of the plan. The *1997 Clean Air Plan* includes the specific measures to reduce ground level ozone by reducing emissions of ozone precursors.<sup>2</sup> No state plan is required to meet state PM<sub>10</sub> standards. Local environmental plans and policies also recognize community goals for air quality. The *San Francisco General Plan* includes an Air Quality Element.<sup>3</sup> The objectives specified by the City include the following:

- **Objective 2:** Reduce mobile sources of air pollution through implementation of the Transportation Element of the General Plan.
- **Objective 3:** Decrease the air quality impacts of development by coordination of land use and transportation decisions.
- **Objective 5:** Minimize particulate matter emissions from road and construction sites.
- **Objective 6:** Link the positive effects of energy conservation and waste management to emission reductions.

## AIR QUALITY CONDITIONS

### Climate

The San Francisco Bay Area's regional meteorological conditions are cool and dry in the summers and mild and moderately wet in the winters. A daytime sea breeze provides fresh air to the Bay Area, but also tends to cause temperature inversions by positioning cool surface air underneath warmer upper-air. The inversions limit vertical motion of pollution and cause pollution potential to be the highest in the sheltered valleys throughout the region and in the subregions that are not directly affected by the marine air entering through the Golden Gate.

The project site is near the Bay shore of San Francisco's China Basin Channel and is provided with clean marine air that travels from the west over the low hills in San Francisco and carries pollutants eastward towards the interior of the Bay.<sup>4</sup> Temperatures in San Francisco are moderated by the marine air and the proximity to the Bay. Average summertime highs are in the 60s to mid 70s, and in the winter, average lows are in the 40s.<sup>5, 6</sup>

### Regional Air Quality

The California Air Resources Board (CARB) compiles inventories and projections of CO, ROG, NO<sub>2</sub>, SO<sub>2</sub>, and PM<sub>10</sub> emissions for the Bay Area. Table 3 presents a summary of the emissions inventory and trends of air pollutants for the Bay Area Air Basin and San Francisco County. Substantial reductions in CO emissions forecast to occur between 1996 and 2010 reflect the stringent emission controls that have been or will be imposed on motor vehicles and stationary sources. PM<sub>10</sub> is forecast to increase, mostly due to the growth in motor vehicle miles traveled in the Bay Area. SO<sub>2</sub> is also forecast to increase throughout the region due to projected increases in industrial activity. Control measures to reduce emissions of ozone precursors are shown in the BAAQMD's *1997 Clean Air Plan*.

**TABLE 3**  
**BAY AREA CRITERIA POLLUTANT EMISSIONS INVENTORY AND PROJECTIONS**  
(Tons/Day - Annual Average)

	CO	ROG/a/	NO <sub>x</sub>	SO <sub>x</sub>	PM <sub>10</sub> /b/
<b>BAY AREA AIR BASIN</b>					
<b>1996</b>					
Total Emissions	3,100	490	540	75	160
On-Road Motor Vehicle Emissions	2,300	240	300	4	8
<b>2010 Forecasted</b>					
Total Emissions	1,800	330	340	86	210
On-Road Motor Vehicle Emissions	960	76	160	4	6
<b>SAN FRANCISCO COUNTY</b>					
<b>1996</b>					
Total Emissions	240	42	38	7	9
On-Road Motor Vehicle Emissions	180	20	20	<1	<1
<b>2010 Forecasted</b>					
Total Emissions	140	30	25	10	19
On-Road Motor Vehicle Emissions	64	5	9	<1	<1

*Notes:*

- Reactive organic gases (excluding emissions from natural vegetation). ROG and NO<sub>x</sub> react in the atmosphere to form ozone.
- On-Road Motor Vehicle Emissions category in this table does not include paved road dust generated by traffic.

*Source:* California Air Resources Board, Emissions by Category 1999. Available at: [www.arb.ca.gov/emisinv/eib.htm](http://www.arb.ca.gov/emisinv/eib.htm).

The nine-county San Francisco Bay Area Air Basin has a history of recorded violations of federal and state ambient air quality standards for ozone, carbon monoxide, and PM<sub>10</sub>. Since the early 1970s, substantial progress has been made toward controlling these pollutants. The



progress has led the area to attaining all state and federal standards except those for ozone and  $PM_{10}$ . The Bay Area is an ozone nonattainment area for state and federal purposes. For  $PM_{10}$ , the Bay Area does not meet the state standard, but the area does meet the federal standard.

### Local Air Quality

The BAAQMD operates air quality monitoring stations in San Francisco at 10 Arkansas Street (at the foot of Potrero Hill) and at 939 Ellis Street (near the Civic Center). Either location would probably be representative of conditions in the project vicinity; however, the Ellis Street station monitors only carbon monoxide. Peak carbon monoxide concentrations observed at the Ellis Street station tend to be slightly higher than those observed at Arkansas Street.

Because the project site is located closer to the traffic of downtown, carbon monoxide concentrations would also tend to be higher than those observed at the Arkansas Street (Potrero Hill) station. Ozone and particulate matter data at the Arkansas Street station show the following:<sup>7</sup>

- During the period of 1992 through 1998, the state 1-hour ozone standard and the federal 1-hour and 8-hour ozone standards were not exceeded on any day at the Arkansas Street station, the only station that measures ozone in San Francisco. During this period, state and federal standards were exceeded in the eastern part of the district and in the Santa Clara Valley.
- During the period of 1993 through 1997 at the Arkansas Street station, the state 24-hour  $PM_{10}$  standard was exceeded in no more than 10 percent of the samples per year, the federal 24-hour standard was not exceeded at all, and the state and federal annual standards were not exceeded at all. The federal standards were also not exceeded elsewhere in the district.

The regional and local air quality data show that the region has made considerable progress toward meeting the state and federal standards. However, at this time, the region still does not meet state and federal ozone standards. Pollutants tend to be carried away from San Francisco

into the more sheltered areas of the region and cause violations of the standards there. In this manner, regional benefits will occur with efforts to control San Francisco's emissions.

### **Local Air Emission Sources**

Traffic-related emissions occur throughout the area around the project site; most notable are the heavy volumes of traffic along the I-80/U.S. 101 corridor and the I-280 Corridor. Additional transportation-related emissions are generated in the area along the Southern Pacific/CalTrain railroad. Emissions due to traffic during events at the Giants Ballpark at China Basin will also contribute to localized air quality when the ballpark project is in operation.

Of the stationary sources that are located in or near the project area, the PG&E Potrero Point Power Plant (recently sold to Southern Energy, Inc.) is probably the most visible. This power plant is located on the Bayshore just east of the Potrero Hill. Small stationary sources also exist at the China Basin Landing Building with typical office or commercial activities (e.g., water heaters, ventilation equipment).

## **IMPACTS**

### **STANDARDS OF SIGNIFICANCE**

A project would have a significant effect on the environment with respect to air quality if it would violate any ambient air quality standard or contribute substantially to an existing or projected air quality violation, or expose sensitive receptors to substantial pollutant concentrations. The BAAQMD specifies the significance criteria as follows:<sup>8</sup> (1) the project impacts would be considered significant if they cause region-wide operation-related emissions equal to or exceeding an established threshold of 80 pounds per day of ROG, NO<sub>x</sub>, or PM<sub>10</sub>, or cause CO concentrations above the state ambient air quality standard; (2) the project

impacts would also be considered to have a significant contribution to cumulative regional air quality effects if the project impacts exceed these standards. If project air quality impacts would not exceed the BAAQMD thresholds, the project still may be found to contribute to significant cumulative air quality impacts if the project is inconsistent with the local general plan's air quality element.<sup>9</sup>

## **METHODOLOGY**

Regional emissions caused by project-related traffic are estimated using the CARB URBEMIS7G computer program.<sup>10</sup> URBEMIS7G assesses the region-wide impacts of proposed land use development based on daily vehicle trips provided by the project's transportation analysis.<sup>11</sup>

Carbon monoxide emission levels are also estimated by the URBEMIS7G model and compared to a BAAQMD-defined screening threshold to determine the necessary level of analysis. Localized CO concentrations near congested intersections are analyzed for projects that would cause more than 550 lb/day of CO of operation-related emissions and for projects with traffic that would cause an intersection to deteriorate to Level of Service (LOS) D, E, or F.

## **PROJECT EFFECTS**

### **Regional Impacts**

Buildout of the proposed project would result in a total increase of approximately 1,100 vehicle trips per day. Based on URBEMIS7G modeling results, increased trips associated with the proposed development would generate approximately 19 lb/day of ROG, 25 lb/day of NO<sub>x</sub>, and 8 lb/day of PM<sub>10</sub>.<sup>12</sup> These emission rates are summarized in Table 4.



**TABLE 4**  
**ESTIMATED VEHICULAR EMISSIONS FROM PROJECT-RELATED TRAFFIC**

<b>Pollutant</b>	<b>BAAQMD Significance Threshold (lb/day)</b>	<b>Project Regional Emissions /a/ (lb/day)</b>
Reactive Organic Compounds (ROG)	80	19
Nitrogen Oxides (NO <sub>x</sub> )	80	25
Particulate Matter (PM <sub>10</sub> )/b/	80	8

*Notes:*

- a. Vehicle emissions in this analysis are based on fleets for 2000. Emissions in future years will decrease as a result of cleaner burning fuels and improved engine efficiency.
- b. Particulate matter includes entrained road dust.

*Source:* EIP Associates, 1999. Emissions estimated with URBEMIS7G model.

Because project development would not result in mobile source operation emissions exceeding the BAAQMD's significance thresholds for ROG, NO<sub>x</sub>, or PM<sub>10</sub>, the project's contribution to regional emissions would not be a significant environmental impact.

### Localized Impacts

The project's transportation analysis indicates that the project would not cause any intersection to substantially deteriorate in performance. While the intersections of King Street/Third Street and King Street/Fourth Street would retain their existing level of service (LOS D) in the existing-plus-project conditions, none would decline to LOS D, E, or F as a result of the project. Using the URBEMIS7G methodology described above, the project would generate about 207 pounds per day of CO. The BAAQMD has established a screening threshold of 550 pounds per day, above which a localized CO analysis is recommended. Because CO emissions would be below the screening threshold of 550 pounds per day and project traffic would not

cause a change in LOS at any affected intersection, no further analysis is required and the project would have a less-than-significant impact related to CO.

### Cumulative Impacts

The San Francisco Bay Area Air Basin is a nonattainment area for ozone. Ozone is created region-wide by atmospheric chemical reactions between reactive organic gases (ROG) and oxides of nitrogen (NO<sub>x</sub>), in the presence of ultraviolet sunlight in warm temperatures.

Therefore, all regional emissions of ROG and NO<sub>x</sub> contribute to cumulative regional increases in ozone levels. The BAAQMD's planning efforts aim to reduce ozone levels while allowing growth to occur, and the BAAQMD *CEQA Guidelines* establish the criteria for identifying significant contributions to cumulative air quality impacts, as noted above under Standards of Significance.

As shown above, the project individually would not be expected to have any significant air quality impacts. The project would not conflict with relevant objectives in the Air Quality Element of the *San Francisco General Plan*. Based on this information, the project would not be expected to contribute significantly to cumulative air quality impacts, and no further analysis of cumulative impacts is necessary.

---

### NOTES - Air Quality

1. National Ambient Air Quality Standards have been established for criteria pollutants, named for the "criteria" documents that justified their regulation.
2. BAAQMD, 1997 Clean Air Plan, and Triennial Assessment, adopted by the Board of Directors, December 17, 1997.
3. City and County of San Francisco, Planning Department, *Air Quality - An Element of the General Plan of the City and County of San Francisco*, July 1997.

4. BAAQMD *CEQA Guidelines*, Assessing the Air Quality Impacts of Projects and Plans, April 1996, Appendix D.
5. The NOAA-CIRES (National Oceanic and Atmospheric Administration - Cooperative Institute for Research in Environmental Studies) Climate Diagnostics Center. San Francisco Airport observations compiled between 1961-1990.
6. BAAQMD *CEQA Guidelines*, Assessing the Air Quality Impacts of Projects and Plans, April 1996, Appendix D, pp. D-14, D-15.
7. California Air Resources Board, Ozone Data Summary (1992-1998) and PM10 Air Quality Data Summaries (1993-1997). Available at [www.arb.ca.gov/aqd/aqd.htm](http://www.arb.ca.gov/aqd/aqd.htm).
8. BAAQMD *CEQA Guidelines*, Assessing the Air Quality Impacts of Projects and Plans, April 1996, Section 2.3.
9. BAAQMD *CEQA Guidelines*, Assessing the Air Quality Impacts of Projects and Plans, April 1996, Page 18.
10. San Joaquin Valley Unified Air Pollution Control District, URBEMIS7G Computer Program User's Guide, Version 3.2 - Emissions Estimations for Land Use Development Projects, August 1998.
11. China Basin Landing Transportation Study, Final Report, prepared by Wilbur Smith Associates, August 24, 1999.
12. The URBEMIS7G model uses emission factors from the CARB EMFAC7G emissions model. Vehicle operating characteristics are determined by each land use type in the proposed project and the setting of the project. Default values recommended by BAAQMD *CEQA Guidelines* are used for the average trip length. Worst-case summer (ozone season) and winter (CO season) temperatures are as recommended in the URBEMIS7G User's Guide, August 1998.



## E. GROWTH INDUCEMENT

The project would include 193,637 gross square feet of additional office space in the China Basin Channel area. Employment on the site would increase by about 700 employees, assuming 275 sq. ft. per employee (conservatively assuming 0% vacancy). This increase would be less than 0.2% over 1995 city-wide employment. No demolition is proposed and no existing employment would be displaced as a result of the proposed project.

Direct increases in employment and business, such as that from the proposed project, induce further growth in households, population, housing, employment, and a range of other goods and services to meet the needs of the additional economic activity. Some of the induced growth would occur in San Francisco; the majority would occur within the San Francisco Bay Area. The direct and induced growth of the proposed project is anticipated in forecasts of employment, households, and population growth prepared for the region by the Association of Bay Area Governments.

The project site is in a developed urban area. No expansion of municipal infrastructure not already under consideration would be required to serve the project.

## **IV. MITIGATION MEASURES PROPOSED TO MINIMIZE POTENTIAL ADVERSE IMPACTS OF THE PROJECT**

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In the course of project planning and design, measures have been identified that would reduce or eliminate potential environmental impacts of the project. These measures have been, or would be, adopted by the project sponsor, its architects, or its other contractors and, therefore, are proposed as part of the project. All of the mitigation measures from the Initial Study (see Appendix A, pp. A.40-A.41) are included below and identified with an asterisk (\*). Because this report does not identify any significant environmental impacts, no additional mitigation measures are identified.

### **A. LAND USE**

Mitigation measures have not been identified because no significant impacts have been found.

### **B. WIND**

Mitigation measures have not been identified because no significant impacts have been found.

### **C. TRANSPORTATION**

Mitigation measures have not been identified because no significant impacts have been found.

### **D. AIR QUALITY**

#### **Measures Included in the Project**

- \* The project sponsor would require its contractors to implement as appropriate the BAAQMD's basic control measures for emissions of dust during construction: (1) water all active construction areas at least twice daily; (2) cover all trucks hauling soil,

sand, and other loose materials, or require trucks to maintain at least two feet of freeboard; (3) pave, apply water three times daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas, and staging areas; (4) sweep daily (with water sweepers) all paved access roads, parking areas, and staging areas; (5) sweep streets daily (with water sweepers), if visible soil material is carried onto adjacent public streets.<sup>1</sup>

## E. GEOLOGY

### Measures Included in the Project

- \* One or more geotechnical investigations by a California-licensed geotechnical engineer are included as part of the project. The project sponsor and its contractors would follow the recommendations of the final geotechnical reports regarding any construction for the project. The project sponsor would ensure that the construction contractor conducts a pre-construction survey of existing conditions and monitors the adjacent building for damage during construction, if recommended by the geotechnical engineer.
- \* If the design-related geotechnical report identifies settlement potential during building loads, then the project sponsor and its contractor would follow the geotechnical engineers' recommendations regarding installation of settlement markers around the perimeter of shoring to monitor any ground movements outside of the shoring itself. Shoring systems would be modified as necessary in the event that substantial movements are detected.

## F. HAZARDS

### Measures Included in the Project

- \* Before any major project-related construction occurs, the project sponsor would undertake building surveys for hazardous materials (e.g., mercury) in areas where such materials could be disturbed as a result of project-related activities. Any hazardous materials discovered would be managed in accordance with local, state, and federal laws, regulations, and appropriate standards.

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### NOTES - Mitigation Measures

1. San Francisco Ordinance 175-91, passed by the Board of Supervisors on May 6, 1991, requires that non-potable water be used for dust control activities. Therefore, contractors would obtain reclaimed water from the San Francisco City Clean Water Program.



## **V. OTHER CEQA CONSIDERATIONS**

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### **A. SIGNIFICANT ENVIRONMENTAL EFFECTS THAT CANNOT BE AVOIDED IF THE PROPOSED PROJECT IS IMPLEMENTED**

In accordance with Section 21100 (b)(2)(A) and 21100.1(a) of the California Environmental Quality Act (CEQA), and Section 15126.2(b) of the State CEQA Guidelines, the purpose of this chapter is to identify significant impacts that could not be eliminated or reduced to an insignificant level by implementing mitigation measures included as part of the project or by other mitigation measures that could be implemented, identified in Chapter IV, Mitigation Measures. This chapter is subject to final determination by the Planning Commission as part of the certification process for the EIR. If necessary, this chapter will be revised in the Final EIR to reflect the findings of the Planning Commission.

The project, with mitigation, would have no unavoidable significant effects. Mitigation measures have been identified in Chapter IV of this report that would reduce or eliminate potential environmental impacts.

### **B. SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES WHICH WOULD BE INVOLVED IN THE PROPOSED ACTION SHOULD IT BE IMPLEMENTED**

The project would intensify development at the site consistent with development in San Francisco's urban environment. Implementing the project would result in an irreversible commitment of energy resources, primarily in the form of fossil fuels, including fuel oil, natural gas, and gasoline or diesel fuel for construction equipment and automobiles, and during demolition, construction and ongoing use of the site. Because the project would comply with California Code of Regulations Title 24, it would not use energy in a wasteful, inefficient or unnecessary manner (see the discussion of Energy in the Initial Study,

Appendix A). The consumption or destruction of other non-renewable or slowly renewable resources would also result during demolition, construction, occupancy, and use of the site. These resources include, but are not limited to, lumber, concrete, sand and gravel, asphalt, masonry, metals, and water. The project would also irreversibly use water and solid waste landfill resources. However, the project would not involve a large commitment of those resources relative to supply, nor would it consume any of those resources wastefully, inefficiently or unnecessarily.

## VI. ALTERNATIVES TO THE PROPOSED PROJECT

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This chapter evaluates alternatives to the proposed China Basin Landing Building Expansion Project and, for each alternative, provides a comparative analysis of potential environmental impacts. The impacts of each alternative are compared to the proposed project. Mitigation measures for the alternatives would be the same as those for the proposed project or as described for the alternative. Given the limited scope of the proposed project's potentially significant impacts, two alternatives were selected for analysis in this SEIR. These alternatives encompass the full range of basic alternatives to the proposed project capable of reducing potentially significant impacts.

- The **No Project Alternative**, referred to as Alternative 1, is a “no build/no change” scenario.
- The **Reduced Development Alternative**, referred to as Alternative 2, would construct only one additional floor rather than the three additional floors of the proposed project.

Due to the unique characteristics of the project site and the project sponsors' objectives, there is no other comparable site within San Francisco that could be a viable alternative location.

### A. ALTERNATIVE 1: NO PROJECT ALTERNATIVE

CEQA Section 15126.6(e)(1) requires that the “no project” alternative discuss the existing conditions, as well as what would reasonably be expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services. The term “existing conditions” means a scenario in which no physical change and no development occurs at the project site, with future conditions remaining as they are now. This scenario is already described in the Setting sections under each environmental topic in the EIR; therefore, it is discussed briefly below.



If existing physical conditions were to continue into the foreseeable future, conditions at the project site would remain as described in detail in the Setting sections of each of the environmental topics included in Chapter III.

Under the No Project Alternative, land uses on the proposed project site would remain as they are now, i.e., the 42-foot-high Berry Building would continue to be used for commercial offices, with ancillary retail uses. The related 80-foot-tall Wharfside building on the same block but immediately to the south of the proposed project would continue as office space. The block's height zone would not be reclassified from 60 feet to 90 feet and there would not be an associated Planning Code amendment.

Future development in the area around the project site as anticipated under approved plans would completely change and intensify land uses in the vicinity of the project, similar to conditions described for the proposed project. The Giants Ballpark (Pacific Bell Park) is already under construction and will open in the year 2000. The Mission Bay Redevelopment Areas and Rincon Point-South Beach Redevelopment Area will include new buildings varying from 80 feet to 160 feet high.

Alternative 1 would have no significant land use impacts nor would it be inconsistent with any City plans or policies, similar to the proposed project. Under the No Project Alternative, the additional three floors would not be built, and no change in wind patterns would result from the addition. Cumulative growth, especially the Mission Bay North redevelopment, would still occur. Wind speeds and duration of hazard criteria exceedances in the project vicinity would generally decrease with or without the project's contribution to wind reductions, because additional buildings north and west of the project site would impede the wind. This effect is generally described in the cumulative analysis in Section III.B., Wind, p. 49.

The No Project Alternative would not add 300 p.m. peak hour person-trips or 140 p.m. peak hour vehicle trips to the transportation systems in the project area, unlike the proposed project. Intersection Levels of Service would not change with or without the project; under the No

Project Alternative, the small increases in delay (see Table 2, p. 70) at the study intersections would not occur. As with the project, Alternative 1 would not cause significant project-specific or cumulative transportation or air quality impacts.

## **B. ALTERNATIVE 2: REDUCED DEVELOPMENT ALTERNATIVE**

Under the Reduced Development Alternative, land uses on the proposed project site would continue as they are now in office and retail uses. One floor would be added to the Berry Building, raising it 15 feet from 42 feet to 57 feet in conformity with the existing 60-foot height limit. The related 80-foot-tall Wharfside building on the same block, immediately to the south of the proposed project, would continue as office space and remain at the same height. The block's height zone would not be reclassified from 60 feet to 90 feet and there would not be an associated Planning Code amendment. Although the project would not have any unavoidable significant impacts, this alternative would be considered the "environmentally superior" alternative because it would further reduce non-significant environmental impacts of the project.

Future development as anticipated under approved plans would substantially change and intensify land uses in the vicinity of the project site, similar to conditions described for the proposed project. The Giants Ballpark is already under construction and will open in the year 2000. The Mission Bay Redevelopment Areas and Rincon Point-South Beach Redevelopment Area will include new buildings varying from 80 feet to 160 feet high.

This alternative would cause increased loading activities compared to existing conditions, but would create a demand for about 1 loading space, less than the project. It would reduce shadows, bulk, and visual appearance from the street and from the property across the street.

With the Reduced Development Alternative, wind conditions would not differ substantially compared to the wind conditions under the project scenario. Wind conditions would be

considered windy; the average wind speed for all 40 test points would decrease by about 1 mph compared to the project conditions, remaining near 14 mph. Wind speeds in pedestrian areas would range from 5 mph to 21 mph. The highest wind speeds in the vicinity (19 to 20 mph) would continue to occur west of the project site on Berry Street, at the intersection of Fourth and King Streets and at the southwest corner of the Wharfside Building, on Fourth Street. Eight of the 40 locations, two more than under the project conditions, would be within the Planning Code's pedestrian-comfort or seating-comfort criteria. Wind speeds at 6 of the 35 pedestrian locations would be within the pedestrian-comfort criterion value of 11-mph; this is the same number as under the project.

Wind speeds at two of the five seating locations would be within the seating comfort criterion value of 7-mph; this is two more than under the project. With the Reduced Development Alternative, the wind hazard criterion of the Planning Code would be exceeded at six of the 40 locations. Exceedances of the hazard criterion would continue to occur at four of the same locations as under the project and existing conditions. The total duration of those existing exceedances would be reduced from 46 hours to 14 hours per year. The alternative would eliminate three of the seven project exceedances; two at the intersection of Third and Berry Streets (with durations of 5 hours per year and 1 hour per year) and one on King Street west of Fourth (with a duration of 3 hours per year). The alternative would create two additional exceedances that would not occur with the project; one with a duration of 6 hours per year at the southwest corner of the intersection of Third and Townsend and one with a duration of 24 hours per year at the northeast corner of the intersection of King and Fourth Streets. The total duration of the exceedances under the alternative would be 44 hours per year. This is a decrease in duration of 11 hours per year from the project conditions. As with the project, because the alternative would reduce the duration of the hazard criterion exceedances, the wind effects of the alternative would not be considered significant. Under cumulative wind conditions, with buildings proposed as part of the Mission Bay North Redevelopment Plan, the duration of the hazard criterion exceedances would be further reduced. This would be similar to cumulative conditions with the project.



Transportation impacts from Alternative 2 would be about 60% less than those described for the proposed project, and, like the project, would not create any significant impacts on local or regional transportation systems. Air quality impacts would be less than those shown for the project and also would not create significant environmental impacts.

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Attn: Gerald Adams

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 San Francisco, CA 94102  
Attn: Rob Waters

**PROJECT AREA TENANTS AND OWNERS**

Tenants and other property owners in the project area, approximately 178 parties, were sent notices of availability of the Draft EIR and Draft EIR public hearing. A complete copy of the distribution listing is available in the Planning Department office at 1660 Mission Street, as part of File No. 98.281E.



## VIII. REPORT PREPARERS; ORGANIZATIONS AND INDIVIDUALS CONSULTED

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## APPENDIX A. INITIAL STUDY

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**NOTICE THAT AN  
ENVIRONMENTAL IMPACT REPORT  
IS DETERMINED TO BE REQUIRED**

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**Date of this Notice:** May 21, 1999

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**Lead Agency:** Planning Department, City and County of San Francisco  
1660 Mission Street, 5th Floor, San Francisco, CA 94103

**Agency Contact Person:** Rana Ahmadi

**Telephone:** (415) 558-6295

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**Project Title:** China Basin Landing Building Expansion,  
Case No. 98.281E

**Project Sponsor:** BRE/CBL, LLC  
**Project Contact Person:** David Cincotta  
415-771-2122

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**Project Address:** 185 Berry Street  
**Assessor's Block and Lot:** Block 3803, Lot 5  
**City and County:** San Francisco

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**Project Description:** 185 Berry Street, between Third and Fourth Streets, Assessor's Block 3803, Lot 5. The project site is located in an M-2 (Heavy Industrial) zoning district and a 60-X height and bulk district. The proposed project would be the vertical expansion of the existing China Basin Landing building by adding three floors to the existing three floors. The expansion of the building would consist of approximately 170,000 gross square feet and rise to a total height of approximately 87 feet. The proposed expansion area would be office space. No parking has been proposed in conjunction with the office expansion project. As part of the project a height reclassification is being proposed to increase the height limit to 90 feet. The project would require approval by the Planning Commission pursuant to Planning Code Sections 302 and 306 (Amendments to the Planning Code), and 321 (Office Development: Annual Limit). The project would require approval from the Board of Supervisors for height reclassification.

---

**THIS PROJECT MAY HAVE A SIGNIFICANT EFFECT ON THE ENVIRONMENT AND AN ENVIRONMENTAL IMPACT REPORT IS REQUIRED.** This determination is based upon the criteria of the Guidelines of the State Secretary for Resources, Section 15063 (Initial Study), 15064 (Determining Significant Effect), and 15065 (Mandatory Findings of Significance), and the following reasons, as documented in the Environmental Evaluation (Initial Study) for the project.

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Deadline for Filing of an Appeal to the City Planning Commission of this Determination that an EIR is required is June 22, 1999. An appeal requires: 1) a letter specifying the grounds for the appeal, and 2) a \$209.00 filing fee.

The public is invited to comment on the scope of the EIR. Such comments must be received by June 22, 1999, to ensure consideration in preparing the Draft EIR.

  
\_\_\_\_\_  
Hillary Gitelman  
Environmental Review Officer



**CHINA BASIN LANDING BUILDING EXPANSION PROJECT**  
**INITIAL STUDY**  
98.281E

## **I. PROJECT DESCRIPTION**

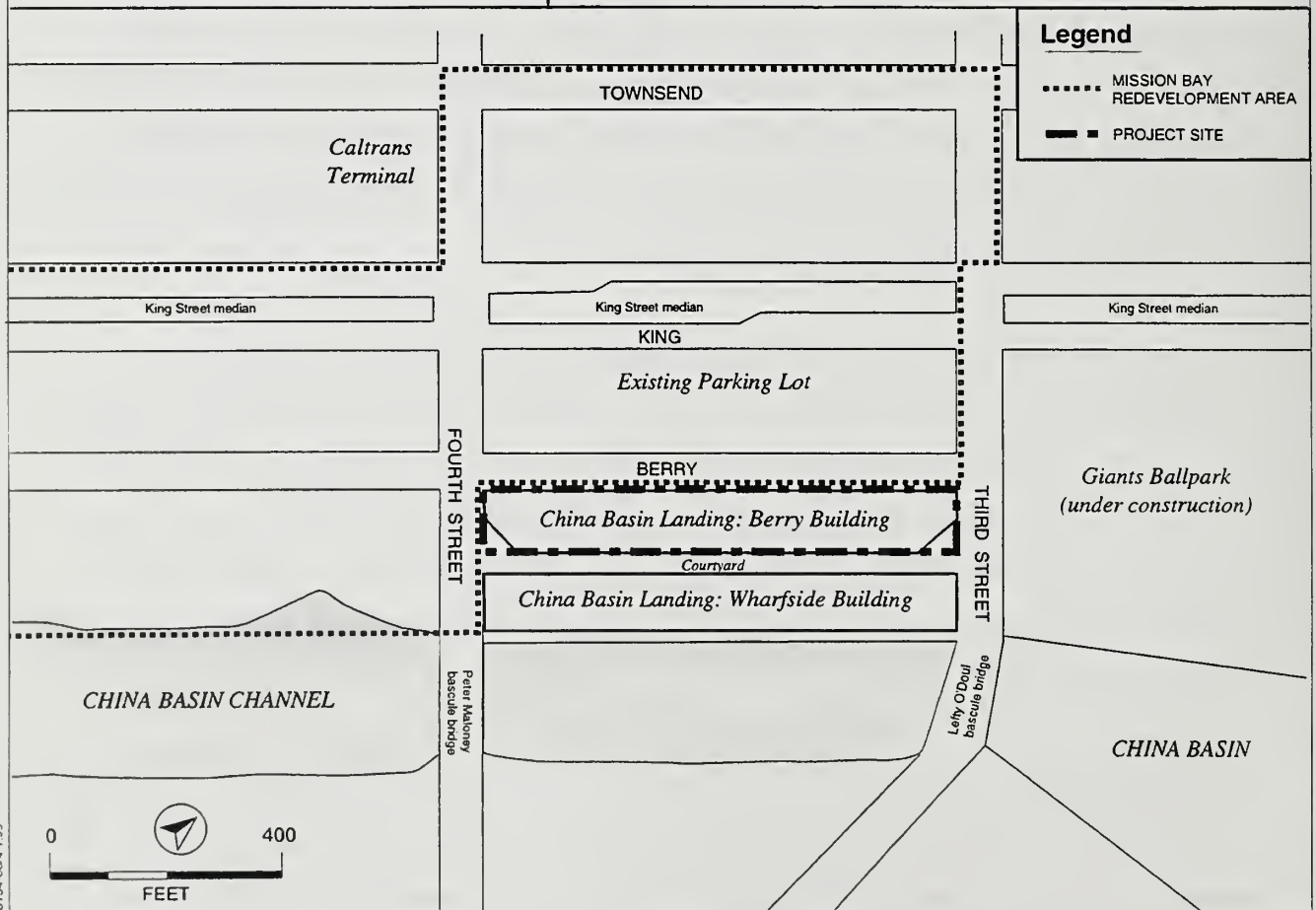
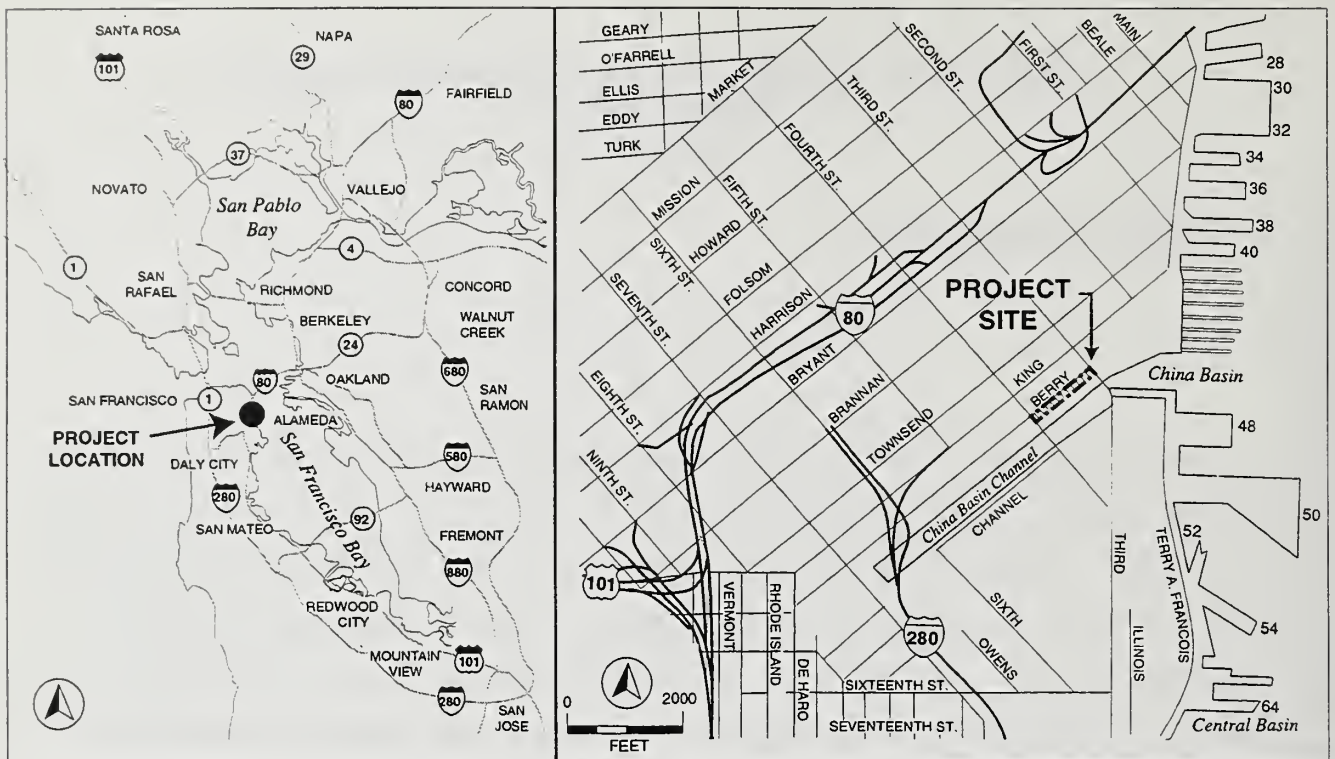
### **Overview**

The proposed project is a three-story expansion (170,000 square foot addition) of one building in the existing China Basin Landing office complex. China Basin Landing is located south of Berry Street, between Third and Fourth Streets in the South Beach/China Basin area of San Francisco. It is comprised of two buildings. The Berry Building (subject of the expansion) was constructed in 1991 and contains 226,000 square feet. The Wharfside Building was constructed in 1922 originally as a warehouse and gradually converted into office beginning in the 1970's. The Wharfside Building is six stories high and contains 450,000 gross square feet (gsf). Between the Berry and Wharfside buildings is a pedestrian courtyard providing access to both buildings through several elevator lobbies. Under the courtyard is an existing one-level parking garage containing 69 parking spaces, with ingress from Third Street and egress to Fourth Street.

The project site is in the Mission Bay area, adjacent to, but outside of, the Mission Bay North Redevelopment area, as shown in Figure 1. The project site is on Assessor's Block 3803, Lot 5, and is approximately 225,000 square feet in size. Figure 2 shows a plan view of the project site and the surrounding area, including the location of PacBell Park for the San Francisco Giants, currently under construction across Third Street. Figures 3 and 4 show two elevations of the proposed Berry Building, including the existing three stories, plus the three stories to be added.

The proposed project would add three stories to the the existing Berry Building, consisting of approximately 170,000 gross square feet and rising to a total of approximately 87 feet. The existing height limit under the San Francisco Planning Code is 60 feet. Therefore, the project includes a proposed height reclassification to 90 feet.

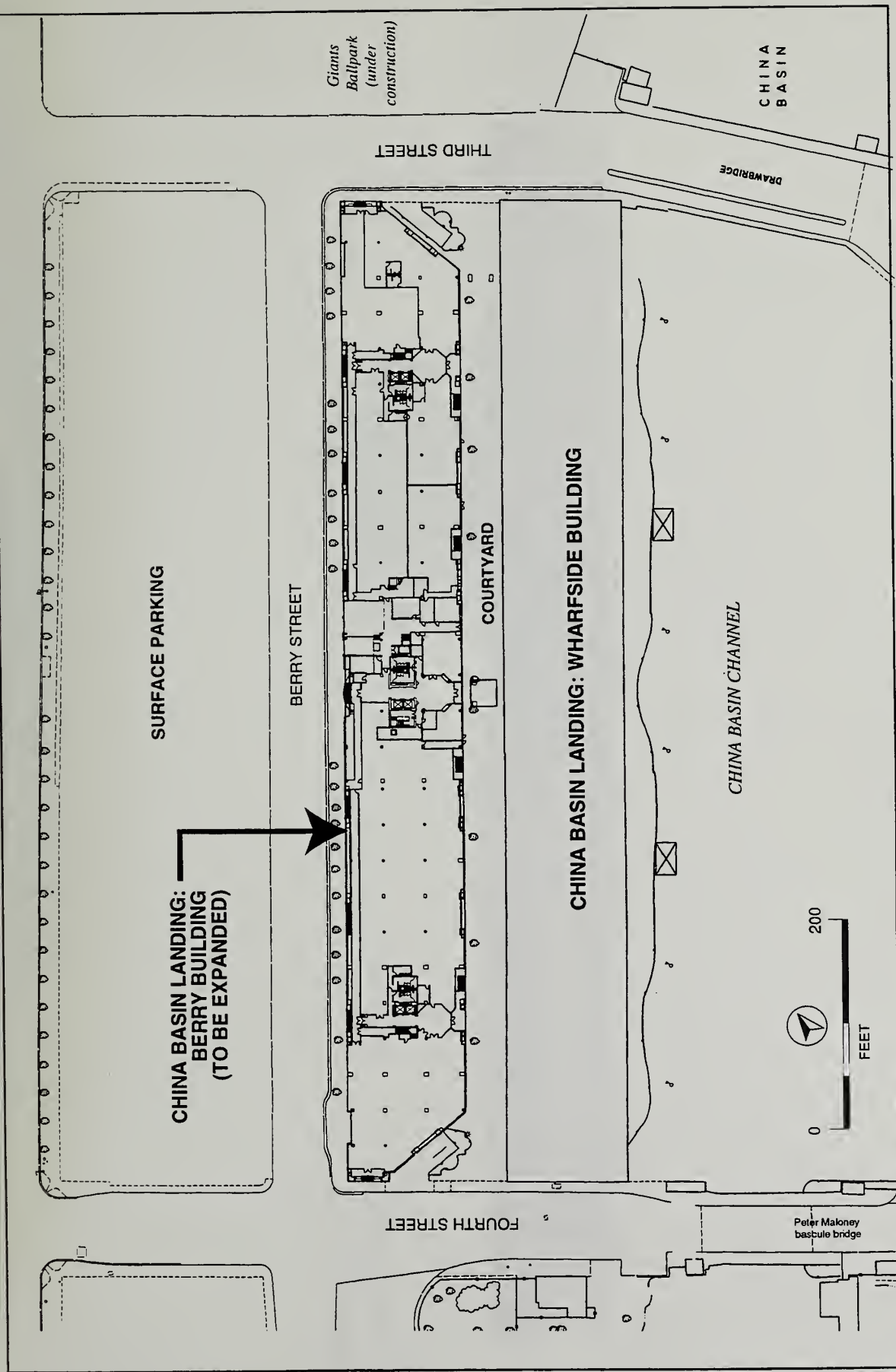




SOURCE: EIP Associates

# CHINA BASIN LANDING BUILDING EXPANSION PROJECT: INITIAL STUDY

## FIGURE I: PROJECT LOCATION

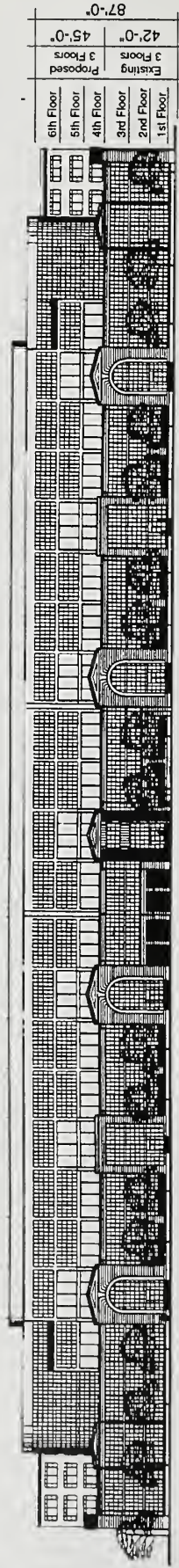


10154-00/4.1.99

SOURCE: Fisher Friedman Associates, EIP Associates

CHINA BASIN LANDING BUILDING EXPANSION PROJECT: INITIAL STUDY

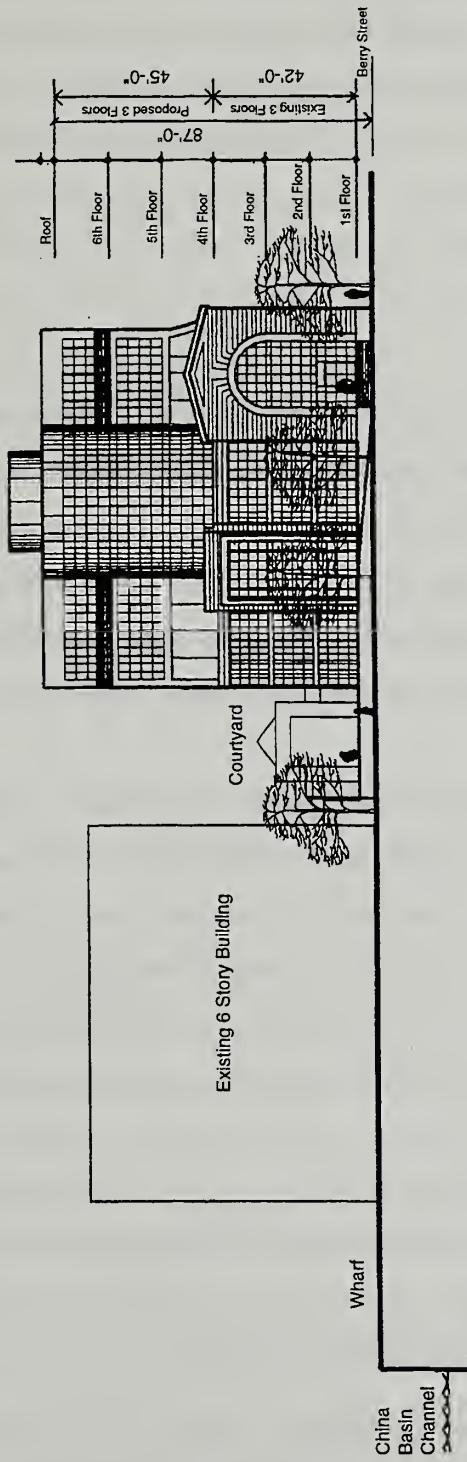
FIGURE 2: SITE PLAN



SOURCE: Fisher Friedman Associates

CHINA BASIN LANDING BUILDING EXPANSION PROJECT: INITIAL STUDY

FIGURE 3: BERRY STREET ELEVATION



SOURCE: Fisher Friedman Associates

CHINA BASIN LANDING BUILDING EXPANSION PROJECT: INITIAL STUDY

FIGURE 4: THIRD STREET ELEVATION



The China Basin complex (including the Berry and Wharfside buildings) is currently required to provide 533 off-site parking spaces within 1,500 feet of the complex in addition to the 67 on-site spaces located beneath the pedestrian courtyard, under Variance Case No. 97.321V, issued in October 1997. The proposed addition of 170,000 sq. ft. of office space would increase the amount of parking required under the Planning Code, necessitating a new parking variance, pursuant to Section 305.

### **Detailed Description**

The proposed project would expand the existing Berry Building at China Basin Landing by adding three stories to the existing three floors. The upward expansion of the Berry Building would consist of approximately 170,000 gross square feet and rise to a total of approximately 87 feet. The existing building is 42 feet high (from the street level), and the project would increase the height to approximately 87 feet. The expansion area would be office space, and the Berry Building would remain in office and commercial uses.

The façade would be a glass and metal window wall system, consistent with the lower three floors of the Berry Building. The three story addition would be set back from the end at both Third and Fourth Streets, and additional setbacks and indentations have been incorporated into the design to provide a lighter appearance and add architectural interest. The primary entrance to the Berry Building and to the China Basin Landing complex would remain mid-block on Berry Street, with secondary entrances at Third and Fourth Streets.

The existing zoning is M-2 (Heavy Industrial). The existing height limit under the San Francisco Planning Code is 60 feet. In order for the project to be approved, a height reclassification would be needed. As part of the project, the height limit is proposed to be to 90 feet. The permitted Floor Area Ratio (FAR) is 5:1. After expansion, the FAR for China Basin Landing would be less than 4:1. As part of the approvals required for the proposed project, the project sponsor will request a new variance under Section 305 of the San Francisco Planning Code from the additional parking that would be required for the new office space.

Construction of the proposed project would take approximately 14 months. The existing Berry Building was designed with a future expansion in mind. Construction would be staged along Berry Street on the north side of the complex. It is anticipated that the majority of the work would be done during normal working hours.

The sponsor plans a separate project, which, if approved, would add 167 parking spaces beneath the adjacent Wharfside Building in an existing basement area, for a total of about 236 on-site spaces, including parking for the handicapped. This area is adjacent to, and would be combined with, the existing parking garage under the courtyard between the buildings. A separate environmental review application has been filed for the parking expansion project. Construction of the parking project is expected to take approximately 8 months. The parking project may or may not be approved and constructed prior to the Berry Building expansion. The parking project would serve the existing China Basin Landing complex, and is not associated with the proposed expansion of the Berry Building.

To satisfy the requirements of its existing parking variance, the China Basin Landing complex leases parking spaces across Berry Street and across King Street for its tenants. The Mission Bay redevelopment will displace these spaces. A new location for displaced parking would have to be leased by the China Basin Landing complex to meet the requirements of the existing variance. The additional spaces under the Wharfside Building could partially offset loss of the surface parking across Berry Street. The existing variance and the proposed parking expansion project are not related to the Berry Building expansion.

## II. SUMMARY OF POTENTIAL ENVIRONMENTAL EFFECTS

### A. EFFECTS FOUND TO BE POTENTIALLY SIGNIFICANT

This Initial Study examines the China Basin Landing Building Expansion Project to identify its potential effects on the environment. On the basis of this study, project-specific effects that have been determined to be potentially significant relate to transportation, air quality,

and wind. These issues will be analyzed in an environmental impact report (EIR). Land use aspects of the project will be included in the EIR for informational purposes.

## B. EFFECTS FOUND NOT TO BE SIGNIFICANT

The following effects of the China Basin Landing Building Expansion Project have been determined to be either less than significant or to be mitigated through measures included in the project: land use; visual quality; shadows; population, employment, and housing; noise; utilities and public services; biology; geology and topography; water; energy and natural resources; hazards; and cultural resources. These issues are discussed below and require no further environmental analysis in the EIR.

## III. ENVIRONMENTAL EVALUATION CHECKLIST AND DISCUSSION

This section uses the standard city environmental checklist to discuss the EIR's planned approach to issues identified for further analysis and to fully consider issues which require no further analysis. Mitigation measures related to issues that will not be discussed further in the EIR are also presented.

### A. COMPATIBILITY WITH EXISTING ZONING AND PLANS

	<u>Not Applicable</u>	<u>Discussed</u>
1. Discuss any variances, special authorizations, changes proposed to the City Planning Code or Zoning Map, if applicable.	_____	<u>  X  </u>
2. Discuss any conflicts with any other adopted environmental plans and goals of the City or Region, if applicable.	_____	<u>  X  </u>

The project site occupies the block bounded by Berry Street on the north, China Basin Channel on the south, Fourth Street on the west, and Third Street on the east (see Figure 1, p. 2) in the South Beach/China Basin area of San Francisco./1/ The project site is with Lot



5 of Assessor's Block 3803 and encompasses an area of approximately 224,675 square feet. Block 3803 also contains an inconsequential Lot No. 6 of approximately 10 by 10 feet off of Berry Street. The block contains two buildings both of which are located on Lot 5.

Due to recent planning developments in the vicinity of the project, the project site is located on a parcel that has become a one-block "island" existing outside of the adjacent *Mission Bay North Redevelopment Plan* (to the north and west) and the *Rincon Point - South Beach Redevelopment Plan* (to the east) and the China Basin Channel to the south which has no applicable plan. The project site also lies outside the closest San Francisco "Area Plans," i.e., the *Northeast Waterfront*, *Central Waterfront*, and *South of Market Area Plans*. However, the project site is in the area of the Ballpark Vicinity Special Use District Interim Controls. The City intends that these controls become permanent by the end of 1999. These controls would not directly affect the proposed project.

The project site is an M-2 Heavy Industrial Zoning District and a 60-X Height/Bulk District. A range of uses are permitted in M-2 Districts, including office and commercial uses. The height limit is 60 feet with no bulk limitations. The M-2 District has a maximum floor-area-ratio (FAR) of 5.0:1 (Section 123, Planning Code), and premiums and transfers that would increase the FAR (Sections 125-128, Planning Code) do not appear to be applicable. With a 5:1 FAR, the maximum development potential for the lot would be approximately 1,123,400 gross square feet (gross square footage of Lot 5 of 224,675 gross sq. ft. multiplied by 5, rounded up to the nearest hundred). Lot 5 contains both the existing Wharfside and Berry Street buildings, and their existing combined development totals approximately 689,630 gross square feet, or 61% of the Lot 5's development potential at the applicable FAR of 5:1.

The proposed project would require a height reclassification through a Zoning Map amendment to permit building heights up to 90 feet within an area presently zoned for a 60-foot height limit. The project would extend the height of the existing three-story office building another three stories. The proposed height amendment to the Zoning Map would not change the lot's development potential since the primary determinant of development potential on this lot is the applicable FAR. The height reclassification does not request a



change in the FAR. With the additional 170,000 gross square feet of development of the proposed project, development on Lot 5 would increase 25% from the existing 683,266 gross sq. ft. to 859,630 gross sq. ft., representing an FAR of about 3.8:1.

As part of the approvals required for the proposed project, the project sponsor will request a new variance under Section 305 of the San Francisco Planning Code from the additional parking that would be required for the new office space. The China Basin Landing complex presently operates under a variance issued in 1997 (Variance Case No. 97.321V, October 1997) that requires provision of 67 on-site parking spaces and 533 off-site parking spaces within 1500 feet of the site. The 533 off-site spaces are provided on two surface lots across Berry Street and across King Street from the project site. These spaces will be displaced by the Mission Bay redevelopment, and China Basin Landing would have to lease new space to meet the requirements of the existing variance.

For informational purposes, the EIR will discuss applicable or relevant plans and required approvals, and will analyze the project in relation to existing and planned land uses and applicable planning documents.

The proposed project is not expected to conflict with the *San Francisco General Plan* or other adopted environmental plans and goals of the City or region. This issue will be addressed in each topical section of the EIR.

## B. ENVIRONMENTAL EFFECTS

### 1. Land Use

	<u>Yes</u>	<u>No</u>	<u>Discussed</u>
a. Disrupt or divide the physical arrangement of an established community?	___	<u>X</u>	<u>X</u>
b. Have any substantial impact upon the existing character of the vicinity?	___	<u>X</u>	<u>X</u>

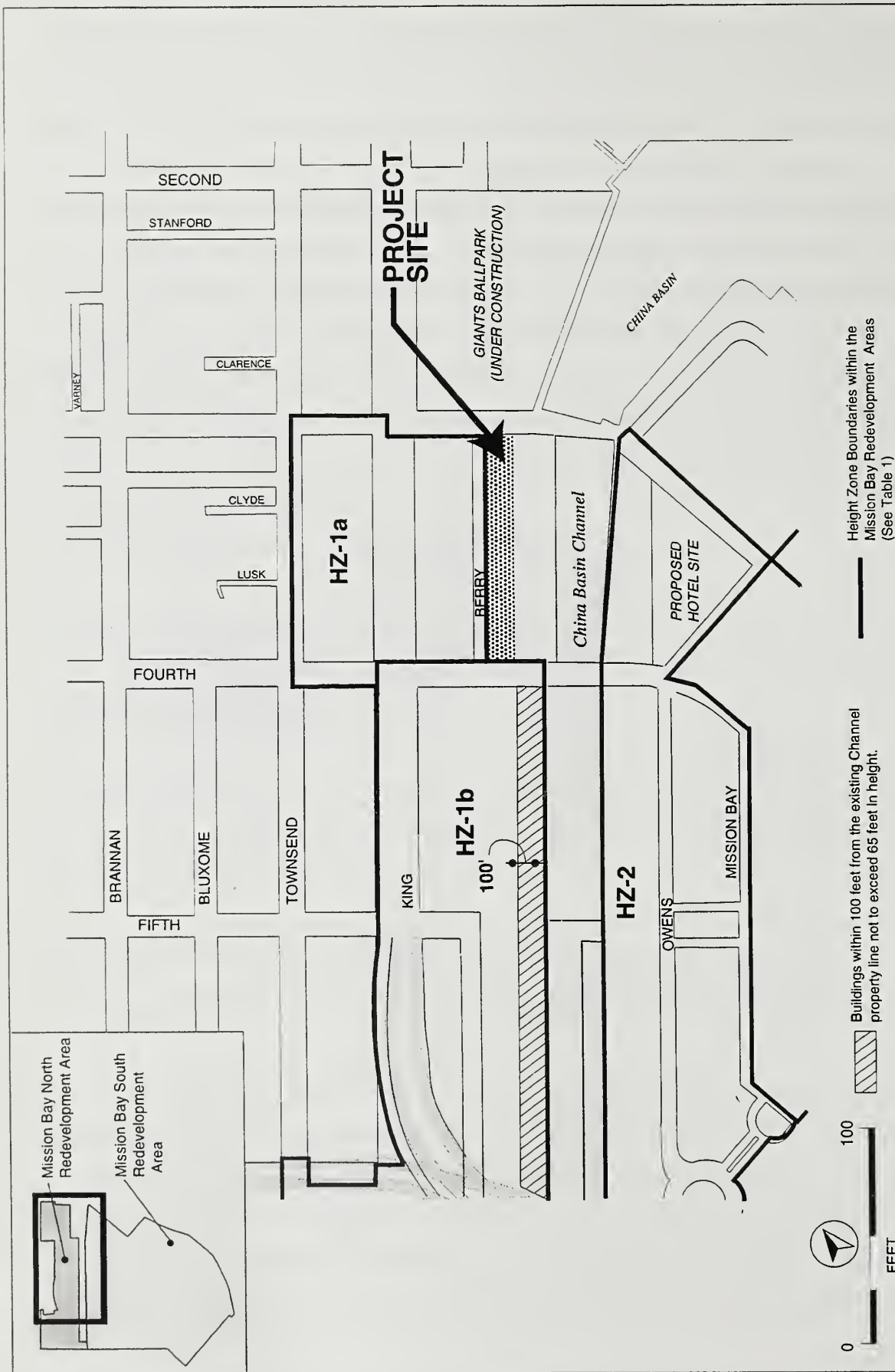
The proposed addition of three more stories of office space to an existing three-story office

building located next to a six-story building would intensify, but not change, the character of land use on the site and in the vicinity, nor would it divide the physical arrangement of an established community. The approximately 87-foot building height would be consistent with the future development anticipated in the vicinity, namely, the Giants Ball Park and Mission Bay redevelopment. The existing Wharfside building already stands six-stories tall and the proposed addition to the existing three-story Berry Building would make both buildings roughly the same height. The Giants Ball Park will be 140 feet high with lighting structures rising to 175 feet. According to the Mission Bay North and South Redevelopment Plans, building heights will range from 65-feet (or less) to 160-feet. Figure 5 shows portions of the Mission Bay Redevelopment Area around the project site. Table 1 explains the height limits within the nearby Mission Bay Height Zones.

<b>Table 1. Height Zones (HZ) in the Mission Bay Redevelopment Areas</b>			
<b>Heights</b>	<b>Mission Bay North</b>		<b>Mission Bay South</b>
	<b>HZ-1a (North of Proposed Project)</b>	<b>HZ-1b (West of Proposed Project)</b>	<b>HZ-2 (South of Project Across and Along Channel)</b>
Base Height	80 ft.	80 ft.	65 ft.
% of developable area	30%	75%	75%
Mid-rise Height	120 ft.	120 ft.	90 ft.
% of developable area	50%	10%	10%
Tower Height	160 ft.	160 ft.	160 ft.
% of developable area	20%	15%	15%

*Source:* City and County of San Francisco Planning Department, San Francisco Redevelopment Agency, *Mission Bay Subsequent Environmental Impact Report*, September 1998, Volume I, pp. III.24-25, Table III.B.2, Provisions Governing Height Zones in Proposed Mission Bay Redevelopment Areas.

The proposed project's height limit reclassification would not change the maximum developable area of the site that is governed by the Planning Code's Floor Area Ratio (FAR; see discussion above under Item III. A, Compatibility with Existing Zoning and Plans). Further, it would not be expected to change the build-out of the site beyond that of the current project. The only substantial area of the site that would remain for hypothetical



SOURCE: San Francisco Redevelopment Agency, EIP Associates

CHINA BASIN LANDING BUILDING EXPANSION PROJECT: INITIAL STUDY

FIGURE 5: PROJECT SITE IN RELATION TO MISSION BAY REDEVELOPMENT AREA AND NEARBY MISSION BAY HEIGHT ZONES



development after completing the proposed project would be the courtyard area between the two existing buildings, which is presently developed and used as a pedestrian courtyard.

The height reclassification would not obviously increase the economic incentives to develop the courtyard area at some time in the future. If it were to occur at a future time, such a proposal would be subject to a separate and subsequent project application. If such an application were made, the hypothetical future project may increase environmental effects associated with additional square footage (e.g. vehicle trips), but it would not create additional height-related effects (wind, shadow, etc.) that are not already associated with the proposed project and assessed in this Initial Study or EIR.

Overall, the project would be consistent with existing and planned land uses in the vicinity and would not have a substantial adverse effect on land use. Land use will be discussed in the EIR for informational purposes.

## 2. Visual Quality

	<u>Yes</u>	<u>No</u>	<u>Discussed</u>
a. Have a substantial, demonstrable negative aesthetic effect?	<u>    </u>	<u>  X  </u>	<u>  X  </u>
b. Substantially degrade or obstruct any scenic view or vista now observed from public areas?	<u>    </u>	<u>  X  </u>	<u>  X  </u>
c. Generate obtrusive light or glare substantially impacting other properties?	<u>    </u>	<u>  X  </u>	<u>  X  </u>

The proposed project would build a three-story addition atop the existing China Basin Berry Building, increasing the height of the building to a total height of 87 feet. This increase in height would exceed the height of the adjacent Wharfside Building by approximately eight feet. It would be taller than older buildings north of the project site. Materials and massing of the additional stories would be compatible with the existing structure. The materials of the proposed project would differ slightly from the painted concrete facade of the adjacent Wharfside Building, but would simulate those used on the existing Berry Building, and not present a significant visual contrast. The China Basin Landing Building is visible from Berry



Street, Third Street, and Fourth Street. The increased height of the building may extend visibility of the structure to limited views along the China Basin Channel, to the east and west of the project site. The project would be partially visible from longer-range views, such as Twin Peaks or Potrero Hill, as part of overall views of downtown and the Mission Bay area. Such views would be limited by existing, intervening high-rise buildings.

Development in the project vicinity includes the Giants Ballpark under construction at Third Street and King Street, west of the project site, considerably taller and larger than the proposed project. In addition, there is currently construction of a housing project along Second Street opposite the ballpark, also taller than the proposed project by 46 feet (approx. 133 ft. minus 87 ft.) in height.

Future development of the Mission Bay area will include the redevelopment of parcels adjacent to the project site to include residential and retail uses, and a hotel on the opposite side of China Basin Channel. The redevelopment of these adjacent lots would increase buildings heights in the project vicinity, surrounding the project site with structures as tall as or substantially taller than the China Basin Landing buildings. (See "Compatibility with Existing Zoning and Plans.") Planned construction of mid-rise and high-rise structures in the nearby Mission Bay Redevelopment Areas may further limit existing long-range views of China Basin Landing from viewpoints such as Twin Peaks and Potrero Hill.

The proposed project would not degrade scenic views of San Francisco Bay or other scenic views from public areas, and would not have a substantial, demonstrable negative aesthetic effect.

The proposed project would not create substantial light or glare that would adversely affect other properties.

Based on the above analysis, no further analysis of visual quality will be presented in the EIR.

3. Population

	<u>Yes</u>	<u>No</u>	<u>Discussed</u>
a. Induce substantial growth or concentration of population?	<u>      </u>	<u>  X  </u>	<u>  X  </u>
b. Displace a large number of people (involving either housing or employment)?	<u>      </u>	<u>  X  </u>	<u>  X  </u>
c. Create a substantial demand for additional housing in San Francisco, or substantially reduce the housing supply?	<u>      </u>	<u>  X  </u>	<u>  X  </u>

The proposed project's 170,000 square feet of office space would be expected to add approximately 600 new employees to San Francisco's economy./2/ The project would not construct housing. It would not displace existing housing or employment.

San Francisco's employment is projected to grow from 534,980 employees in 1995 to 673,495 employees in 2015, an increase of 26%./3/ Growth would increase City employment by 0.1% over 1995 levels and would constitute about 0.4% of citywide employment growth projected for the period 1995-2015. This potential increase in employment would be minimal in the context of the total employment in greater San Francisco.

San Francisco consistently ranks as one of the most expensive housing markets in the United States. San Francisco is the central city (and most urban place) in an attractive region known for its agreeable climate, open space and recreational opportunities, cultural amenities, strong and diverse economy, and prominent educational institutions. As a regional employment center, San Francisco attracts people who want to live close to where they work. These factors continue to support strong housing demands in the City. New housing to relieve the market pressure created by the strong demand is particularly difficult to provide in San Francisco because the amount of land available is limited, and because land and development costs are relatively high.

An estimated 311,430 households resided in San Francisco in 1995. By 2015, San Francisco

expects formation of 32,309 new households, a 10% increase that will create a total of 343,739 households./4/ Using (the proposed) updated Office Affordable Housing Production Program (OAHPP) methodology, the project would create about 200 new households residing in San Francisco, or less than 1% of the new household formation projected between 1995 and 2015./5/ Demand for new housing would be less if a greater than usual percentage of new office employees were already employed and living locally. Housing demand itself is not a physical environmental effect, but an imbalance between housing demand and supply can lead to long commutes with associated traffic and air quality impacts. The project would be subject to Section 313 of the San Francisco Planning Code, the Office Affordable Housing Production Program. Under the OAHPP, the project sponsor would be required to contribute to production of affordable housing in San Francisco either by directly constructing housing to meet the calculated demand, or by paying an in-lieu fee. The OAHPP methodology estimates the demand for affordable housing from office development projects based on various criteria, including those of the U.S. Department of Housing and Urban Development. The OAHPP also estimates the cost of producing the units, and this cost becomes the basis for the in-lieu fee payment. Under current requirements, the in-lieu fee payment would be approximately \$1.2 million (170,000 gsf multiplied by \$7.05 per gsf)./6/ The project would not substantially increase demand for housing.

Population and housing issues require no further analysis in the EIR.

#### 4. Transportation

	<u>Yes</u>	<u>No</u>	<u>Discussed</u>
a. Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system?			<u>To Be Determined</u>
b. Interfere with existing transportation systems, causing substantial alterations to circulation patterns or major traffic hazards?	<u>      </u>	<u>  X  </u>	<u>  X  </u>
c. Cause a substantial increase in transit demand which cannot be accommodated by existing or proposed transit capacity?			<u>To Be Determined</u>



- d. Cause a substantial increase in parking demand which cannot be accommodated by existing parking facilities?

To Be Determined

The proposed addition of about 170,000 of office space to the Berry Building would place increased demands on the local transportation system, including increased traffic, transit demand, and parking demand. The EIR will discuss project effects related to transportation and circulation, including intersection operations, transit demand, and impacts on pedestrian circulation, parking, and freight loading, as well as construction impacts (see Section III.A. for a discussion of existing and proposed parking variance requirements). The analysis will discuss the project in relation to both existing transportation conditions and future conditions with development of Mission Bay and the Giants Ballpark.

The project would not change the existing street system and would not interfere with existing transportation systems or cause major traffic hazards. Therefore, this issue will not be discussed further in the EIR.

## 5. Noise

	<u>Yes</u>	<u>No</u>	<u>Discussed</u>
a. Increase substantially the ambient noise levels for adjoining areas?	___	<u>X</u>	<u>X</u>
b. Violate Title 24 Noise Insulation Standards, if applicable?	___	<u>X</u>	<u>X</u>
c. Be substantially impacted by existing noise levels?	___	<u>X</u>	<u>X</u>

## *Introduction*

Outdoor noise in the vicinity of the project area includes numerous potential sources of noise. The most significant existing source of noise throughout most of San Francisco is traffic, but in this area, other special noise sources either contribute to the existing background noise levels, or will contribute to the noise levels when they become operational. Non-traffic noise sources in this area include: the existing Caltrain terminal (and trains); the existing MUNI



Metro and the approved MUNI Third Street Light Rail Project (including MUNI light-rail trains); and crowd and concert noise from the approved San Francisco Giants Ballpark.

### *Construction Noise*

Construction activities from the project could potentially include: materials hauling and erection and finishing of the building expansion. The construction activities would be short-term and temporary, and the construction activities would not include any pile driving, demolition, or foundation work.

Construction at sites near China Basin Landing, such as for the Giants Ballpark across Third Street, or the Mission Bay development across King Street and across Fourth Street, may occur concurrently with construction of the proposed development. The timing and the geographic extent of the Mission Bay development phases have not at this time been determined<sup>7/</sup>, although Catellus has filed an application for the first Major Phase, along King Street, between Third and Fourth Streets. These construction activities could temporarily increase the overall noise levels in the immediate vicinity of construction, as the noise intensity would be greater with a larger number of noise sources.

Noise from construction activities would vary greatly depending on the construction process, type and condition of equipment used, and orientation of noise source and receptor. Many of these factors are usually left to the contractor's discretion, which makes it difficult to accurately estimate levels of construction noise.

The construction activities at all projects in the area, including the proposed development, would be conducted in compliance with the San Francisco Noise Ordinance (Article 29, San Francisco Police Code). Noise impacts from construction activities could be reduced at least three different ways: reduce the sound level at the source, provide the receiver with shielding, and alter the path of sound transmission. Compliance with the Noise Ordinance is required by law and would reduce any impacts to a less than significant level.

Based on the above analysis, no further analysis of construction noise will be presented in the EIR.

### *Traffic Noise*

Ambient noise levels in the vicinity of the project are typical of noise levels in urban San Francisco. The ambient noise is dominated by vehicular traffic, including trucks, cars, buses, and emergency vehicles. Traffic volumes generated by the proposed project would add to existing traffic volumes and traffic volumes resulting from Mission Bay development and from daily employee travel at the Giants Ballpark. Existing noise conditions in the project area and traffic noise impacts caused by the Giants Ballpark and Mission Bay developments are documented in the EIRs for those projects.<sup>8/</sup><sup>9/</sup> Other projects in the area would also contribute to traffic noise levels in the vicinity of China Basin Landing. Future noise levels would be a combination of traffic noise caused by the proposed project and noise generated by other unrelated projects and activities.

Generally, traffic must double in volume to produce a noticeable increase in noise levels. Traffic volumes would not be expected to double above existing conditions as a result of the proposed project; therefore, substantial increases in traffic noise in the project area would not be anticipated. Although traffic volumes will be calculated as part of the transportation analysis in the EIR, traffic noise will not be analyzed further.

### *Building Equipment Noise*

The proposed project would include mechanical equipment, such as air conditioning units and chillers, which could produce operational noise. These operations would be subject to the San Francisco Noise Ordinance, Article 29 of the San Francisco Police Code. Compliance with Article 29, Section 2909, would reduce noise from building operations. Therefore, the EIR will not discuss building equipment noise further.

*Existing and Expected Noise Levels in Project Area*

The existing Caltrain terminal, MUNI Metro, and the approved MUNI Third Street Light Rail Project are each in the vicinity of the proposed project. Noise from these sources would be audible to the occupants but would not be considered to have substantial impacts for the proposed project. Expected noise from crowds attending future baseball games or events at Pacific Bell Park has been fully analyzed in the Giants Ballpark FEIR./10/ A site adjacent to the China Basin Buildings (within the Mission Bay Project Area on Berry Street between Third and Fourth Streets) was considered in that noise analysis. This location was evaluated because of potential future residential (i.e. sensitive) uses. Office uses at China Basin Landing are not considered sensitive. At the potential future residential location, average hourly noise levels from crowds at the ballpark would not exceed existing ambient noise levels from traffic and other urban sources, although crowd noise would be noticeable to listeners in upper-story dwellings and in outdoor areas, because the sound has a different quality than traffic noise. Some listeners could find cheering noises and crowd noise annoying; others might enjoy hearing crowds and occasional cheers from the ballpark. Crowds leaving the ballpark after night games (generally around 10:30 - 11:00 p.m.) would also be a source of noise. The Giants Ballpark FEIR concludes that because of the limited increase in noise levels due to crowd noise, the limited duration and frequency of ball game and other large-crowd events at the ballpark, and because of the urban setting of the ballpark, crowd noise would not be considered a significant impact. Based on this conclusion and the analysis of the noise impacts on the location adjacent to China Basin Landing, no further analysis of this topic is necessary in the EIR.

As noted in the Giants Ballpark FEIR, concerts would be distinctly noticeable in nearby outdoor areas, including the open areas around the China Basin Landing Buildings. The noise might irritate some users of the outdoor space, but it could also attract others interested in listening to the music./11/ The China Basin Landing Buildings would serve to shield areas within the Mission Bay Project Area from ballpark concert noise./12/ While concert noise from the amplified music would be noticeable within the buildings because it is different from the usual urban background noise, it would not cause substantial impacts for



the proposed project. The proposed development includes addition of space that would be designated for office use. Because the typical hours of operation of office use do not overlap with typical concert schedules, the concert noise would not usually coincide with working hours and would not negatively affect occupant use. Based on this information, concert noise from the ballpark will not require further analysis in the EIR.

#### *Title 24 Interior Noise Standards*

No residential uses would be included with the proposed development. The noise insulation requirements of Title 24 of the California Code of Regulations apply to residential occupancies. Although some level of noise insulation would be provided in the proposed project, the standards of Title 24 would not be applicable. No further analysis is required in the EIR.

#### 6. Air Quality / Climate

	<u>Yes</u>	<u>No</u>	<u>Discussed</u>
a. Violate any ambient air quality standard or contribute substantially to an existing or projected air quality violation?			<u>To Be Determined</u>
b. Expose sensitive receptors to substantial pollutant concentrations?			<u>To Be Determined</u>
c. Permeate its vicinity with objectionable odors?	<u>      </u>	<u>  X  </u>	<u>  X  </u>
d. Alter wind, moisture or temperature (including sun shading effects) so as to substantially affect public areas, or change the climate either in the community or region?			<u>To Be Determined</u>

#### *Construction Emissions*

During construction, air quality could potentially be affected. Heavy equipment could create fugitive dust and emit nitrogen oxides (NO<sub>x</sub>), carbon monoxide (CO), sulfur dioxide (SO<sub>2</sub>),



hydrocarbons (HC), and particulate matter with a diameter of less than 10 microns ( $PM_{10}$ ), as a result of diesel fuel combustion. The primary pollutant of concern in fugitive dust would be  $PM_{10}$ .

Construction emissions would be short term and temporary, but could still cause adverse effects on local air quality. The Bay Area Air Quality Management District (BAAQMD), in its CEQA Guidelines, has developed an analytical approach that obviates the need to quantitatively estimate these emissions. Instead, BAAQMD has identified a set of feasible  $PM_{10}$  control measures for construction activities. The project includes these measures (p. 39) [see Mitigation Section, below] to reduce the effects of construction activities to an insignificant level. Because the project would include these mitigation measures, it would not cause significant construction-related air quality effects. Therefore, the EIR will not address these effects further.

### *Traffic Emissions*

Potential air quality impacts from the proposed project could occur due to increased traffic. Emissions will be calculated and compared to the BAAQMD significance thresholds for regional impacts. Of particular concern are carbon monoxide emissions and the possibility of exceeding carbon monoxide standards at congested intersections and nearby sensitive receptors. The impact of vehicular carbon monoxide emissions on local ambient levels will be assessed in the EIR. Carbon monoxide concentrations will be estimated for existing, existing-plus-project, and cumulative (future-with-project) conditions at selected intersections. The results of the analysis will be compared to state and federal ambient air quality standards to evaluate impacts.

### *Toxic Air Contaminant Emissions/Objectionable Odors*

The project includes new office space for the China Basin Landing Buildings. These uses could require operation of natural gas fired boilers or chillers that could emit trace quantities

of toxic air contaminants (e.g., approximately 0.000002 pounds of benzene would be emitted per million British Thermal Units of heat input). These emissions would not adversely affect air quality. Neither of these uses are expected to have the potential to generate objectionable odors. No further analysis is required in the EIR.

### *Shadow Effects*

Section 295 of the City Planning Code was adopted in response to Proposition K (passed in November 1984) in order to protect certain public open spaces from shadowing by new structures during the period between one hour after sunrise and one hour before sunset, year round. Section 295 restricts new shadow upon public spaces under the jurisdiction of the Recreation and Park Department by any structure exceeding 40 feet unless the City Planning Commission finds the impact to be insignificant. A shadow study has been completed for the project.<sup>/13/</sup> The shadow study showed no impacts on public open spaces. The addition to the Berry Building would create new shadows on sidewalks to the northeast, north, and northwest of the project site, across Berry Street; and on proposed new buildings in the Mission Bay North Redevelopment Area across Berry Street. The project would also create new shadows on the pedestrian courtyard between the Berry Building and the Wharfside Building. Because these shadows would not affect public open space, they are not considered significant environmental effects. New shadow from the project would not reach the Ballpark plaza at Third and King Streets during typical spring and summer use times. This issue will not be discussed further in the EIR.

### *Wind Effects*

In order to provide a comfortable wind environment for people in San Francisco, the City established specific comfort criteria to be used in the evaluation of proposed buildings in certain areas of the City. The City Planning Code specifically outlines these criteria for the Downtown Commercial District and each of the Rincon Hill, Van Ness Avenue, and South of Market areas [Sections 148, 249.1(a)(3), 243(c)(8), 263.11(c)]. There are no specific

wind comfort or wind hazard criteria in the City Planning Code that would apply specifically to the China Basin Landing Building Expansion Project.

Large structures can affect street-level wind conditions. Wind conditions partly determine pedestrian comfort on sidewalks and in other public areas. In developed areas, buildings typically about 100 feet or more in height can redirect wind flows around buildings and divert winds downward to street level, which can result in increased wind speed and turbulence at street level. However, possible increases in wind speed depends on the heights, configurations, and orientations of surrounding buildings and streets.

The EIR will analyze the project's effects in regard to existing wind conditions. A wind tunnel test will be performed and the effects of the project will be documented. Winds will be analyzed at locations surrounding the project, including the pedestrian courtyard, the Giants Ballpark plazas, and sidewalks along adjacent streets. Although the requirements of Section 148 of the City Planning Code regarding hazardous winds do not apply to the project, the standards in Section 148 will be used to provide appropriate methodology and criteria for the analysis of wind effects.

## 7. Utilities / Public Services

	<u>Yes</u>	<u>No</u>	<u>Discussed</u>
a. Breach published national, state or local standards relating to solid waste or litter control?	<u>    </u>	<u>  X  </u>	<u>  X  </u>
b. Extend a sewer trunk line with capacity to serve new development?	<u>    </u>	<u>  X  </u>	<u>  X  </u>
c. Substantially increase demand for schools, recreation or other public facilities?	<u>    </u>	<u>  X  </u>	<u>  X  </u>
d. Require major expansion of power, water, or communications facilities?	<u>    </u>	<u>  X  </u>	<u>  X  </u>

### *Solid Waste*

San Francisco's solid waste is disposed of at the Altamont Landfill. A substantial expansion



of the landfill has recently been approved; therefore, the landfill will be able to accommodate San Francisco's solid waste stream well into the future. The solid waste associated with project construction and operation would not substantially affect the foreseeable life of the Altamont Landfill; therefore, the EIR will not further discuss the issue of solid waste generation.

### *Water*

The project would incrementally increase the demand for water in San Francisco. However, the China Basin Landing Building Expansion would be designed to incorporate water-conserving measures, such as installing low-flush toilets and urinals, as required by California State Building Code section 402.0(c). Based on this assumption, approximately 20,400 gallons per day would be used during project operation./14/ The San Francisco Water Department would provide sufficient water to meet the needs of the project. Because the project would not result in a substantial increase in water use, it would not result in a significant impact; therefore, the EIR will not discuss the issue further.

### *Wastewater*

The site is served by San Francisco's combined sewer system, which handles both sewage and storm water runoff. Water treatment is provided primarily by the Southeast Water Pollution Control Plant. The project would meet any wastewater pretreatment requirements of the San Francisco Public Utilities Commission, as required by the San Francisco Industrial Waste Ordinance./15/ Based on the anticipated water demand during project operation, the sanitary sewer load generated by the proposed project would be approximately 18,400 gallons per day./16/ No new sewer infrastructure construction would be needed because the project site is already served by sewer with adequate capacity./17/ Capacity in the area would be affected by the approved Mission Bay development. North of China Basin Channel, the Mission Bay project will add combined sewer capacity for the existing combined sewer system in the project area./18/ The China Basin Landing Building



Expansion Project would have little effect on the total wastewater volume discharged through the combined sewer system, because storm water runoff is a major component of the total flow. Stormwater from the project site would not change substantially, because the Berry Building site is already developed, and the area of the roof and impervious surfaces of the proposed project would be nearly equivalent to the area of the existing roof and impervious surfaces. For these reasons, the EIR will not evaluate demands on wastewater treatment facilities further.

### *Schools, Recreation, or Other Public Facilities*

The project would provide a new place of work for about 600 net new employees in addition to the existing work force of the China Basin area. Some of these employees would have children who would attend San Francisco schools. Many of the children of the employees would attend schools outside San Francisco. Because these school children would be dispersed among many neighboring communities, their numbers would be too small to require any one school district to construct new school facilities. Independent of the proposed project, additional school facilities are planned for the area. A site for a new public school is included in the recently-approved Mission Bay development./19/ For these reasons, the proposed project would not have a significant environmental impact related to schools, and the EIR will not discuss the issue further.

Nearby open space is privately maintained at the existing China Basin Landing complex in two places, the pedestrian courtyard between the Berry Building and Wharfside Building, and the wharf area between the Wharfside Building and China Basin Channel. Additional open space would also be available nearby with development of Mission Bay. Demand caused by resident and worker populations of Mission Bay and proposed new open space development within Mission Bay are fully discussed in the Mission Bay SEIR./20/ The planned open space development would benefit the employees of the China Basin Landing complex.

The proposed project would add to demand for other community services. The development would cause an incremental increase in demand for additional library facilities, improvements

to existing streets, and off-site street maintenance, when considered in the context of the greater South of Market area, which is already densely developed. In these cases, impacts would be primarily social and economic (e.g. demand for child care services, demand for emergency medical services), and therefore are not considered environmental impacts subject to the provisions of CEQA./21/ For these reasons, impacts for open space and community services will not be analyzed further in the EIR.

### *Police and Fire Protection Services*

The project site presently receives police and fire protection services, and the project would create little additional demand for fire and police services in the area. Although the project could increase the number of calls received from the area or the level of regulatory oversight that must be provided as a result of the increased concentration of activity on-site, the increase in responsibilities would not be substantial in light of the existing demand for police and fire protection services in the greater South of Market area. The increase in demand due to the project would not require the construction of any new police or fire prevention facilities. Independent of the proposed project, additional police and fire protection services are planned for the area. Sites for new police and fire stations are included in the recently-approved Mission Bay development./22/ For these reasons, the EIR will not discuss further police or fire protection services.

### *Power and Communications Facilities*

The existing China Basin Landing Buildings are already served by power utilities and communication facilities. The proposed development would tap into the existing power and communications grids. Therefore, no new power or communications facilities would be necessary as a result of project implementation, and the EIR will not discuss this issue further.

8. Biology

	<u>Yes</u>	<u>No</u>	<u>Discussed</u>
a. Cause an increase in traffic which substantially affect a rare or endangered species of animal or plant, or the habitat of the species?	<u>    </u>	<u>  X  </u>	<u>  X  </u>
b. Substantially diminish habitat for fish, wildlife or plants, or interfere substantially with the movement of any resident or migratory fish or wildlife species?	<u>    </u>	<u>  X  </u>	<u>  X  </u>
c. Require removal of substantial numbers of mature, scenic trees?	<u>    </u>	<u>  X  </u>	<u>  X  </u>

Almost all of the project site is covered by impervious surfaces offering little or no habitat value. The proposed project would extend an existing three-story structure another three stories. The project would not affect any threatened, rare, or endangered plants, animals, or habitats since no such species or habitats are present. The project would not interfere with any resident or migratory species. This topic will not be discussed in the EIR.

9. Geology/Topography

	<u>Yes</u>	<u>No</u>	<u>Discussed</u>
a. Expose people or structures to major geologic hazards (slides, subsidence, erosion and liquefaction)?	<u>    </u>	<u>  X  </u>	<u>  X  </u>
b. Change substantially the topography or any unique geologic or physical features of the site?	<u>    </u>	<u>  X  </u>	<u>  X  </u>

*Overview*

The site is fairly flat and fully developed at an elevation approximately one foot above San Francisco City Datum. This site and the land to the north along the original San Francisco Bay waterfront was filled between the mid-1800s to early-1900s. The geology in the site vicinity consists of alluvial soils and sands from the Colma formation of Mid-Pleistocene to Recent age and bedrock from the Franciscan formation of the Jurassic-Cretaceous age. The Franciscan formation contains interbedded sandstone and shale, limestone, radiolarian chert,



and meta volcanic rocks. The groundwater surface in the site vicinity is expected to occur approximately 10 feet below the ground surface and slope to the east. This will fluctuate with tidal forces and dewatering activities in the waterfront area. /23/

The primary geotechnical issues that would be addressed in the building expansion design are: (1) foundation type and supporting capacity, and (2) settlement under building loads and earthquake shaking. /24/

### *Geologic Hazards*

The Community Safety Element of the *San Francisco General Plan* contains maps that show areas subject to geologic hazards. The project site is located in an area subject to groundshaking from earthquakes along the San Andreas and Northern Hayward Faults and other faults in the San Francisco Bay Area (Maps 2 and 3). The project site is also in an area of liquefaction potential (Map 4). /25/ This means that the project is located within a Seismic Hazards Study Zone designated by the California Department of Conservation, Division of Mines and Geology. For any development proposal in an area of liquefaction potential, the project sponsor must prepare a geotechnical report that assesses the nature and severity of the hazards at the site and recommends project design and construction features to reduce the hazards.

The proposed project would be required to meet the seismic safety provisions of the currently applicable (1995 or later) San Francisco Building Code. Strict enforcement of seismic standards is the minimum requirement for development of the proposed project to reduce the chance of injury to people in or near the building during a major earthquake. This analysis assumes that the more stringent provisions of the 1997 California Building Code (or of applicable future revisions) would be adopted as part of the San Francisco Building Code prior to construction of the proposed project. Compliance with the San Francisco Building Code provisions would reduce regulated hazards to an acceptable level.

The existing building is designed to accommodate a fourth floor, but it would require seismic



strengthening to support the three-story addition. The proposed seismic strengthening involves the addition of eccentric braced frames utilizing new steel beams and braces and existing concrete columns. The structural engineer for China Basin has indicated that the existing foundation and piles beneath the Berry Building are sufficient to hold the additional three floors planned. No foundation work would be required.

To ensure compliance with all San Francisco Building Code provisions regarding structural safety, when the Department of Building Inspection reviews the geotechnical report and building plans for a proposed project, it determines necessary engineering and design features for the project to reduce potential damage to structures from groundshaking and liquefaction. The project includes a mitigation measure (see p. 41) [see Mitigation Measures] to facilitate Building Code compliance and reduce potential geological hazards. By implementing the mitigation measure, potential damage to structures from geologic hazards at the project site would be ameliorated through the Department of Building Inspection requirement for a geotechnical report and review of the building permit application. No further analysis is required in the EIR.

### *Tsunami and Seiche*

The project site is located adjacent to the China Basin Channel. Historical records (including those from the 1906 earthquake) provide little reliable information about the runups that could occur due to a tsunami or seiche./26/, /27/ Map 6 of the Community Safety Element of the *San Francisco General Plan* illustrates that the project site is located in an area of potential inundation for a 20-foot tsunami./28/

The basic concept of flood protection is to ensure that the lowest occupied floor has at least one foot of clearance above the flood elevation anticipated for the 100-year event. The proposed building expansion does not include any excavated or subgrade areas, and none of the proposed building expansion would be threatened by the 100-year event or overland flows. Addition of three stories of office space above the existing China Basin Landing would not expose occupants to flooding hazards from tsunami or seiche. No further analysis

is required in the EIR.

### *Settlement Potential*

The site contains artificial fill, most of it unengineered, placed in Mission Bay and the China Basin during the general filling of Bay-side areas in San Francisco between the mid-1800s and early-1900s. The fill is distributed irregularly across the site and, because of its diverse origins, is widely variable in its density, compaction, shrink-and-swell potential, and corrosivity characteristics. The artificial fill is not suitable as foundation support for large or heavy structures because it is subject to settlement. The weight of a structure founded on the fill would cause compression or shifting of the fill, thus causing the structure to sink (settle), which, in turn, could damage the foundations, floor slabs, or frame of the structure. Below the fill is soft, compressible, water-saturated, silty clay known as Bay Mud. The Bay Mud is not suitable as foundation support for large or heavy structures for the same reason the overlying fill is not suitable. It is subject to settlement, and structures founded on it would cause compression or shifting of the Bay Mud, leading to settlement damage of the foundations, floor slabs, or frame of the structure. Below the Bay Mud is an irregular layer of sandy alluvium, which is underlain by Old Bay Clay, a stiff marine deposit that rests on the Franciscan bedrock (chert, shale, serpentine and sandstone). The alluvium and the Old Bay Clay are suitable for foundation support. Although the sheared (i.e., fractured and broken) bedrock may not be stable during severe seismically-induced groundshaking, the massive (i.e., solid, unfractured) bedrock is very stable in static and dynamic conditions, and therefore is suitable as foundation support.

The existing Berry Building is supported by piles. No excavation or foundation work would be necessary as part of the proposed project; as such, no dewatering would be required. No further analysis is required in the EIR.

### *Topography of Site*

The project would not alter the topography of the site or otherwise affect any unique geologic

or physical features of the site.

No further analysis of geology, seismicity, or soils is required in the EIR.

#### 10. Water

	<u>Yes</u>	<u>No</u>	<u>Discussed</u>
a. Substantially degrade water quality, or contaminate a public water supply?	___	<u>X</u>	<u>X</u>
b. Substantially degrade or deplete ground water resources, or interfere substantially with ground water recharge?	___	<u>X</u>	<u>X</u>
c. Cause substantial flooding, erosion or siltation?	___	<u>X</u>	<u>X</u>

#### *Water Quality*

During operations, the project would comply with all local wastewater discharge requirements. The existing site is served and the proposed project would continue to be served by San Francisco's combined sewer system, which handles both sewage and storm water runoff. No storm water would be discharged directly to the China Basin Channel or the San Francisco Bay. Water treatment is provided primarily by the Southeast Water Pollution Control Plant. The project would meet any wastewater pretreatment requirements of the San Francisco Public Utilities Commission, as required by the San Francisco Industrial Waste Ordinance. Compliance with these requirements would ensure that the project operations do not have the potential to affect any public water supply. The EIR will not further analyze affects to water quality.

#### *Groundwater Resources*

San Francisco Ordinances 390-91 and 391-91 require use of reclaimed water and groundwater "wherever it is possible to do so." According to this ordinance, non-residential projects over 40,000 sq. ft. that require a site permit, building permit, or other authorization, and are located within this area, shall provide for the construction and operation of a



reclaimed water system for the transmission of the reclaimed water within buildings and structures. That is, the building would need to be designed with dual plumbing to service uses of both reclaimed water (*e.g.*, toilets, landscaping, and cooling systems) and potable water. The ordinance also requires that owners, operators, or managers of all development projects register their projects with the Water Department. For each project, the Water Department will then issue a certificate of intention of use of reclaimed water; reclaimed water shall be used unless the Water Department issues a certificate exempting compliance because reclaimed water is not available, an alternative water supply is to be used, or the sponsor has shown that the use of reclaimed water is not appropriate. The appropriate use of reclaimed water, when it becomes available, would reduce potable water consumption. The project sponsor would either install separate piping and related facilities for reclaimed water or obtain an exemption from the general manager of the Water Department.

No dewatering would be necessary during project construction. Groundwater in the vicinity of the project site is influenced by tidal action in nearby China Basin Channel and contains high levels of total dissolved solids (a measure of salinity).<sup>/29/</sup> Therefore, it is not expected to be used as part of the City's future water supply. The EIR will not further analyze effects to groundwater.

### *Flooding, Erosion, or Siltation*

The project site is entirely paved or covered by structures; therefore, the project would not increase or decrease the area of impervious surface at the site or alter site drainage. Project-related wastewater and storm water would continue to flow to the combined sewer system. During construction, staging of construction facilities and equipment would be expected to occur along Berry Street in existing parking spaces in front of the existing building. This staging area and the surroundings are flat and paved or impervious. This essentially eliminates the potential for erosion or siltation impacts during the construction period. Construction staging runoff would flow to the combined sewer system.

No further analysis of water resources is required in the EIR.



11. Energy / Natural Resources

	<u>Yes</u>	<u>No</u>	<u>Discussed</u>
a. Encourage activities which result in the use of large amounts of fuel, water, or energy, or use these in a wasteful manner?	___	<u>X</u>	<u>X</u>
b. Have a substantial effect on the potential use, extraction, or depletion of a natural resource?	___	<u>X</u>	<u>X</u>

*Energy / Natural Resource Use and Efficiency*

The project includes addition of office-space to an existing office building. Expansion of office use would not result in use of large amounts of fuel, water, or energy. The project would meet current state and local codes concerning energy consumption, including Title 24 of the California Code of Regulations. For this reason, it would not cause a wasteful use of energy. Therefore, energy consumption requires no further analysis and will not be discussed in the EIR.

12. Hazards

	<u>Yes</u>	<u>No</u>	<u>Discussed</u>
a. Create a potential public health hazard or involve the use, production or disposal of materials which pose a hazard to people or animal or plant populations in the area affected?	___	<u>X</u>	<u>X</u>
b. Interfere with emergency response plans or emergency evacuation plans?	___	<u>X</u>	<u>X</u>
c. Create a potentially substantial fire hazard?	___	<u>X</u>	<u>X</u>

*Hazards*

Regarding the potential for public health hazards, the project would involve the expansion of existing office uses at the site, but such uses would not pose any substantial health or safety hazards related to hazardous materials because they would not involve any substantial use, production, or disposal of hazardous materials. Hazardous materials use would continue to be limited to the use of common maintenance supplies, such as paints, cleaners, and

disinfectants, most of which would be consumed through use, and to the occasional use of diesel fuel for emergency back-up generators.

Although they would not be disturbed by the proposed project, certain contaminants from past site activities have been identified in soil and groundwater at the project site, and in materials in the Wharfside Building. A *Phase I Environmental Site Assessment* has been prepared for the project site and is available for public review at the San Francisco Planning Department, 1660 Mission Street./30/ According to the Phase I study, the project site was part of San Francisco Bay until it was filled in the 1860's to accommodate the development of two coal gasification plants nearby. In later years, the site was occupied by various warehouses and lumber companies. The existing Wharfside Building was constructed in 1922. It housed grocery retailers who relied on numerous railroad spurs along the north side of the property. The spurs were removed in the 1960's, and the China Basin Landing Berry Building was completed in 1991./31/ The type of fill beneath the site typically contains polynuclear aromatic hydrocarbons, heavy metals, oil, and grease.

There is currently one above-ground storage tank at the Berry Building (4,000 gallons), two above-ground storage tanks at the Wharfside Building (650 and 3,000 gallons), and one underground storage tank at the Wharfside Building (1,500 gallons). These tanks contain diesel fuel for emergency generators./32/ At least three underground storage tanks (a 550 gallon waste oil tank and two 500 gallon diesel fuel tanks) have been removed from the courtyard area./33/ Each tank had developed holes that resulted in limited soil contamination. In each case, the San Francisco Department of Public Health determined that residual contamination does not pose an environmental concern and closed the tank removal cases./34/

The project site does not appear on the *State of California Hazardous Waste and Substances Sites List* prepared pursuant to Government Code section 65962.5, although properties within neighboring blocks do appear on the list./35/ According to the Phase I Environmental Site Assessment, no properties in the vicinity of the project site pose any substantial environmental concerns, such as migration of contamination onto the project site./36/

The project would involve no excavation. Dewatering is not expected to be necessary for project construction./37/ Therefore, the project would not involve any risk of exposure of the public to contaminated sites.

The Phase I study reports the presence of hazardous materials within the existing buildings. It states that the Wharfside Building may have asbestos-containing materials in certain exterior walls, plaster, floor covering, and ceiling materials,/38/ and some lead paint./39/ Mercury is also likely to be present in both buildings; it is a common component of electrical switches, fluorescent light bulbs, and other equipment. No equipment containing polychlorinated biphenyls (PCBs) has been identified./40/

Mercury in fluorescent light bulbs, thermostats, and light switches, or other hazardous materials, if any exist in the Berry Building, may be exposed during construction and could pose health concerns. It is unlikely that the Berry Building contains any asbestos-containing material or lead paint, because the building was built in 1991, after these materials were banned. Provided that existing hazardous materials would be identified before major construction were to begin, implementation of existing laws and regulations would ensure the health and safety of workers, neighbors, and the environment. Mercury is regulated as a hazardous waste under the oversight of the San Francisco Department of Public Health, the Certified Unified Program Agency that implements California's hazardous waste generator regulations.

The project includes a mitigation measure (see p. 41) intended to reduce potential health risks associated with building materials containing hazardous materials by securing the investigation, removal, and disposal of these materials prior to project construction. By requiring that a building survey be conducted to detect the presence of any hazardous materials at building locations to be disturbed as part of the project, the measure would ensure compliance with the existing regulatory regime regarding the management of these potentially hazardous building components. No further analysis is required in the EIR.



Regarding emergency response plans and fire hazards, San Francisco ensures fire safety primarily through the provisions of the San Francisco Building Code and the San Francisco Fire Code. Existing buildings are required to meet standards contained in these codes. In addition, final building plans for commercial projects are reviewed by the San Francisco Fire Department (as well as the Department of Building Inspection) to ensure conformance with these provisions. The proposed project would be required to conform to these standards, which (depending on building type) may also include development of an emergency procedure manual and an exit drill plan. In this way, potential fire hazards (including those associated with hydrant pressure and emergency access) would be adequately addressed through the permit review process.

### 13. Cultural Resources

	<u>Yes</u>	<u>No</u>	<u>Discussed</u>
a. Disrupt or adversely affect a prehistoric or historic archaeological site or a property of historic or cultural significance to a community or ethnic or social group; or a paleontological site except as a part of a scientific study?	<u>      </u>	<u>  X  </u>	<u>  X  </u>
b. Conflict with established recreational, educational, religious or scientific uses of the area?	<u>      </u>	<u>  X  </u>	<u>  X  </u>
c. Conflict with the preservation of buildings subject to the provisions of Article 10 or Article 11 of the City Planning Code?	<u>      </u>	<u>  X  </u>	<u>  X  </u>

### *Historical Resources*

A review of previous inventories and studies has been performed to determine the presence of historically or architecturally important properties on, or in the vicinity of, the proposed project site. The proposed project site is located in an area of the City that is within close proximity to areas containing important historic resources.



Architectural surveys undertaken by the Foundation for San Francisco's Architectural Heritage (Heritage) in the project area have identified several properties as architecturally significant within 1,000 feet of the proposed project site. The Lefty O'Doul Bridge (at Third Street) and the Peter R. Maloney Bridge (at Fourth Street) are located within one block of the proposed project site. The Lefty O'Doul and Peter R. Maloney bridges are both drawbridges built in the 1930s, with steel truss work and counterbalance structures. The two bridges have been determined to be eligible for listing on the National Register of Historic Places.

The South End Historic District, including former industrial and warehouse structures, is nearby with a boundary at approximately Second and King Streets. Many of the buildings identified by Heritage in the South End Historic District, particularly along Townsend Street, are former industrial and warehouse structures that have been converted to office or showroom uses. These buildings typically include brick work with decorative cornice and window details with masonry accents. The District includes several structures near the proposed project site which have been identified by Heritage as architecturally significant. The properties at 128 King Street (Castle Brothers Warehouse) and at 123 Townsend Street (Southern Pacific Warehouse) have been determined eligible for the National Register. None of the aforementioned structures are situated on the project site.

A records search with the State Historic Preservation Office for the proposed project site was conducted by EIP Associates to identify the potential historical significance of the Wharfside Building at 185 Berry Street, formerly called the China Basin Landing Building. Built in 1922 and altered in 1973 to accommodate office uses, the Wharfside Building was evaluated by the 1976 San Francisco Department of City Planning Survey. At that time, the building was given a rating of "1", minor or no importance, on a scale of "0" to "5," with "5" being the rating for those resources of highest historical significance. A subsequent Historic Property Survey undertaken by Caltrans in 1983 for the City's I-280 Transfer Concept determined the Wharfside Building ineligible for listing on the National Register. The building is not listed on the State Register or rated by Heritage, nor is it a designated City benchmark under Article 10 of the Planning Code.

No buildings rated by Heritage or structures determined eligible for listing in the National Register would be discernibly affected by the proposed project. The China Basin Landing Building, built in 1991, is not eligible for listing on any federal, state, or local historic register.

Based on the above analysis, no further analysis of historical resources will be presented in the EIR.

### *Cultural Resources*

Cultural resources evaluations of areas immediately adjacent to the proposed project site consisting of a systematic review of available maps, photographs, drawings, and other documents were completed by David Chavez & Associates for the 1997 San Francisco Giants Ballpark at China Basin EIR and the 1998 Mission Bay SEIR. The 1997 Giants Ballpark EIR found the potential existence of prehistoric archaeological deposits and historic archaeological deposits from the Spanish period (1769-1822), Mexican era (1822-1848), and the Early American period (1848-1864) to be very low within the China Basin area because much of this area was totally submerged under San Francisco Bay until the Bay was gradually filled in the mid-nineteenth to early 20th centuries. The 1998 Mission Bay SEIR found that the potential for prehistoric, Native American sites was low in the areas surrounding the proposed China Basin Landing project site, but could not be discounted entirely. Historic resources at the proposed project site were not identified within either Chavez study. Additionally, no record has been made of archaeological findings at the Project Site.

There are no established religious, educational, or scientific uses of the project site. Recreational activities in the courtyard, such as sitting or eating lunch, may be temporarily disturbed during construction, but this would not be a significant effect.

The addition of three stories to the existing China Basin Landing Building would build upon the existing structure and would not require excavation at the site. Development of the

proposed China Basin Landing project would not disturb potential subsurface archaeological resources. This issue will not be discussed further in the EIR.

### C. OTHER

	<u>Yes</u>	<u>No</u>	<u>Discussed</u>
Require approval of permits from City Departments other than the Department of City Planning or Bureau of Building Inspection or from Regional, State or Federal Agencies?	___	___	<u>X</u>

The Planning Commission would consider certification of the Final EIR, approval of the proposed project, and adoption of a mitigation monitoring program. The Commission would also consider recommending the proposed height reclassification to the Board of Supervisors. The Board of Supervisors would consider approval of the height limit reclassification. The Zoning Administrator would consider approval of the proposed project's application for a parking variance. The Berry Building is outside the Bay Conservation and Development Commission's jurisdiction.

### D. MITIGATION MEASURES

	<u>Yes</u>	<u>No</u>	<u>N/A</u>	<u>Discussed</u>
1. Could the project have significant effects if mitigation measures are not included in the project?	<u>X</u>	___	___	<u>X</u>
2. Are all mitigation measures necessary to eliminate significant effects included in the project?	<u>To Be Determined</u>			

The following are mitigation measures related to topics determined to require no further analysis in the EIR. The EIR will contain a chapter describing mitigation measures proposed as part of the project and measures that would be, or could be, adopted to reduce potential adverse project effects identified in the EIR.

#### *Air Quality / Climate*

- The project sponsor would require its contractors to implement as appropriate the BAAQMD's basic control measures for emissions of dust during construction: (1)



water all active construction areas at least twice daily; (2) cover all trucks hauling soil, sand, and other loose materials, or require trucks to maintain at least two feet of freeboard; (3) pave, apply water three times daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas, and staging areas; (4) sweep daily (with water sweepers) all paved access roads, parking areas, and staging areas; (5) sweep streets daily (with water sweepers), if visible soil material is carried onto adjacent public streets./41/

### *Geology / Topography*

- One or more geotechnical investigations by a California-licensed geotechnical engineer are included as part of the project. The project sponsor and its contractors would follow the recommendations of the final geotechnical reports regarding any construction for the project. The project sponsor would ensure that the construction contractor conducts a pre-construction survey of existing conditions and monitors the adjacent building for damage during construction, if recommended by the geotechnical engineer.
- If the design-related geotechnical report identifies settlement potential during building loads, then the project sponsor and its contractor would follow the geotechnical engineers' recommendations regarding installation of settlement markers around the perimeter of shoring to monitor any ground movements outside of the shoring itself. Shoring systems would be modified as necessary in the event that substantial movements are detected.

### *Hazards*

- Before any major project-related construction occurs, the project sponsor would undertake building surveys for hazardous materials (e.g., mercury) in areas where such materials could be disturbed as a result of project-related activities. Any hazardous materials discovered would be managed in accordance with local, state, and federal laws, regulations, and appropriate standards.



## E. ALTERNATIVES

The EIR will discuss two alternatives to the proposed project that would reduce or eliminate any significant environmental effects. The alternatives will include the following:

1. No Project
2. Reduced Development Alternative. This alternative will consist of adding only one additional floor to the Berry Building. The addition of one floor could be done within the existing height limit of 60 feet. The additional floor space would be approximately 55,000 gsf, and it would be used for office.

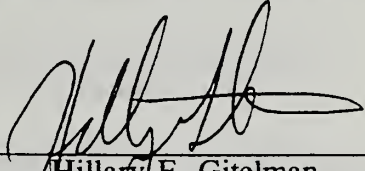
## F. MANDATORY FINDINGS OF SIGNIFICANCE

	<u>Yes</u>	<u>No</u>	<u>Discussed</u>
1. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or pre-history?	___	<u>X</u>	___
2. Does the project have the potential to achieve short-term, to the disadvantage of long-term, environmental goals?	___	<u>X</u>	___
3. Does the project have possible environmental effects which are individually limited, but cumulatively considerable? (Analyze in the light of past projects, other current projects, and probable future projects.)	<u>To Be Determined</u>		
4. Would the project cause substantial adverse effects on human beings, either directly or indirectly?	___	<u>X</u>	___

## G. ON THE BASIS OF THIS INITIAL STUDY

- \_\_\_ I find the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared by the Department of City Planning.
- \_\_\_ I find that although the proposed project could have a significant effect on the environment, there WILL NOT be a significant effect in this case because the mitigation measures, numbers \_\_\_, in the discussion have been included as part of the proposed project. A NEGATIVE DECLARATION will be prepared.
- X I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

5/22/99  
Date

  
Hillary E. Gitelman  
Environmental Review Officer for  
Gerald G. Green  
Director of Planning  
Planning Department

## Notes:

1. For ease of reading, Berry Street and streets parallel to it are described as running east-west, and Third Street and streets parallel to it are described as north-south streets, even though the street network in this area south of Market Street is not exactly aligned north-south and east-west.
2. Mission Bay office employment factor of 289.5 square feet per employee, accounting for a 5% vacancy factor, yields an estimate of 587 employees, rounded up to 600 employees. Source: City and County of San Francisco, Planning Department, *Mission Bay Supplemental Environmental Impact Report*, SCH No. 97092068, file no. 96.771E, certified September 17, 1998, Volume I, p. V.C.24, Table V.C.5, Mission Bay Project Employment by Land Use and Subarea at Build-Out (2015).
3. Keyser Marston Associates, Inc., *San Francisco Cumulative Growth Scenario, Final Technical Memorandum*, prepared for the San Francisco Redevelopment Agency, March 30, 1998.
4. Keyser Marston Associates, Inc., *San Francisco Cumulative Growth Scenario, Final Technical Memorandum*, prepared for the San Francisco Redevelopment Agency, March 30, 1998.
5. City and County of San Francisco Planning Code, Section 313 of the Office of Affordable Housing Production Program Ordinance, applies only to office development. The proposed updated assumptions to calculate housing demand include: 55% of new employees will live in the City in households with an average of 1.6 workers per household (City and County of San Francisco, Planning Department, *Mission Bay Final Supplemental Environmental Impact Report*, SCH No. 97092068, file no. 96.771E, certified September 17, 1998, Volume III, Appendix C, p. C.8, Table C.8, Jobs/Housing Analysis for the Proposed Project). The Office of Affordable Housing Production Program approach is used here only as an evaluation tool to estimate total employment generation.
6. City and County of San Francisco Planning Code, Section 313, the Office of Affordable Housing Production Program Ordinance, applies only to office development. Section 313 contains provisions and procedures for determining the exact gross square footage to which the in-lieu fee payment factor would be applied, as well as for increasing the fee to keep pace with inflation. As such, the fee estimate in this Initial Study is approximate, with the Planning Department determining the precise fee at a subsequent time in the project approval process. Section 313.6 describes the in-lieu fee payment calculation.
7. City and County of San Francisco, Planning Department, *Mission Bay Final Supplemental Environmental Impact Report*, SCH No. 97092068, file no. 96.771E, certified September 17, 1998, Volume I, pp. III.34-35.
8. City and County of San Francisco, Planning Department, *San Francisco Giants Ballpark at China Basin FEIR*, SCH No. 96102056, file no. 96.176E, certified June 26, 1997, Volume I, Project Traffic Noise Levels, p. IV.249.
9. City and County of San Francisco, Planning Department, *Mission Bay Final Supplemental Environmental Impact Report*, SCH No. 97092068, file no. 96.771E, certified September 17, 1998, Volume I, p. V.G.17.
10. City and County of San Francisco, Planning Department, *San Francisco Giants Ballpark at China Basin FEIR*, SCH No. 96102056, file no. 96.176E, certified June 26, 1997, pp. IV.239-IV.242 and IV.251-IV.256.

11. City and County of San Francisco, Planning Department, *San Francisco Giants Ballpark at China Basin FEIR*, SCH No. 96102056, file no. 96.176E, certified June 26, 1997, p. IV.259.
12. City and County of San Francisco, Planning Department, *San Francisco Giants Ballpark at China Basin Summary of Comments and Responses*, SCH No. 96102056, file no. 96.176E, certified June 26, 1997, p. C&R.533.
13. Sharon M. Young, City and County of San Francisco, Planning Department, letter to David P. Cincotta, February 2, 1999.
14. Daily water use would be expected to be approximately 120 gallons per day per 1000 gross square feet of office use [i.e.  $(120 \text{ gpd}/1000 \text{ sf}) \times (170,000 \text{ sf}) = 20,400 \text{ gpd}$ ]. Usage factor telephone communication between Brewster Birdsall, EIP Associates and Ken Litle, KCA Engineers, January 28, 1999.
15. Greg Gershkovich, Baltes/Valentino engineers, telephone communication with EIP Associates, February 11, 1999.
16. Sanitary sewer load would be expected to be approximately 90% of the daily water use.  $[(0.90) \times (120 \text{ gpd}/1000 \text{ sf}) \times (170,000 \text{ sf}) = 18,400 \text{ gpd}]$
17. Greg Gershkovich, Baltes/Valentino engineers, telephone communication with EIP Associates, February 11, 1999.
18. City and County of San Francisco, Planning Department, *Mission Bay Final Supplemental Environmental Impact Report*, SCH No. 97092068, file no. 96.771E, certified September 17, 1998, Volume II, p. V.M.49.
19. City and County of San Francisco, Planning Department, *Mission Bay Final Supplemental Environmental Impact Report*, SCH No. 97092068, file no. 96.771E, certified September 17, 1998, Volume I, p. II.33.
20. City and County of San Francisco, Planning Department, *Mission Bay Final Supplemental Environmental Impact Report*, SCH No. 97092068, file no. 96.771E, certified September 17, 1998, Volume II, pp. V.M.15-29.
21. See Goleta Union School District v. The Regents of the University of California, 36 Cal. App. 4th 1121 (1995).
22. City and County of San Francisco, Planning Department, *Mission Bay Final Supplemental Environmental Impact Report*, SCH No. 97092068, file no. 96.771E, certified September 17, 1998, Volume I, p. II.32.
23. *Report of Phase I Environmental Site Assessment*; China Basin Landing Buildings, 185 Berry Street. Prepared by: LAW Engineering and Environmental Services, Inc., October 27, 1997.
24. *Geotechnical Investigation: China Basin Wharf Reconstruction, San Francisco, California*. Prepared by Treadwell & Rollo, Inc., October 22, 1992.
25. San Francisco General Plan, Community Safety Element. 1997 Proposal for Adoption, April 1997. pp.I.4.6-I.4.9.



26. *Tsunami*: a sea wave produced by any large scale, short-duration disruption of the ocean floor, principally by a shallow submarine earthquake, but also by submarine earth movement, subsidence, or volcanic eruption. *Seiche*: a standing-wave oscillation of the surface of water in an enclosed or semi-enclosed basin (such as a lake, bay, or harbor) that is initiated by landslides, earthquakes, or other geologic phenomena, and continues after cessation of the originating force.
27. City and County of San Francisco, Planning Department, *Mission Bay Final Environmental Impact Report*, Volume 2, Technical Analyses, p. VI.K.15. SCH No. 86070113, file no. 86.505EMTZ, certified August 23, 1990.
28. San Francisco General Plan, Community Safety Element. 1997 Proposal for Adoption, April 1997. p.I.4.11.
29. City and County of San Francisco Planning Department, *Mission Bay Final Supplemental EIR*, Volume II, pp. V.J.3 - V.J.5.
30. Law Engineering and Environmental Services, Inc., *Report of Phase I Environmental Site Assessment: China Basin Landing Buildings, 185 Berry Street, San Francisco, California*, 94107, October 27, 1997, Project No. 52000-7-1215-03.
31. Law Engineering and Environmental Services, Inc., *Report of Phase I Environmental Site Assessment: China Basin Landing Buildings, 185 Berry Street, San Francisco, California*, 94107, October 27, 1997, Project No. 52000-7-1215-03, pp. iii-iv, 6-7.
32. Law Engineering and Environmental Services, Inc., *Report of Phase I Environmental Site Assessment: China Basin Landing Buildings, 185 Berry Street, San Francisco, California*, 94107, October 27, 1997, Project No. 52000-7-1215-03, pp. 20-21 and Figure 3.
33. Law Engineering and Environmental Services, Inc., *Report of Phase I Environmental Site Assessment: China Basin Landing Buildings, 185 Berry Street, San Francisco, California*, 94107, October 27, 1997, Project No. 52000-7-1215-03, pp. 8-11 and Figure 3.
34. Law Engineering and Environmental Services, Inc., *Report of Phase I Environmental Site Assessment: China Basin Landing Buildings, 185 Berry Street, San Francisco, California*, 94107, October 27, 1997, Project No. 52000-7-1215-03, pp. 9-11.
35. California Environmental Protection Agency, Hazardous Materials Data Management Program, *State of California Hazardous Waste and Substances Sites List*, April 1998, pp. 211-216.
36. Law Engineering and Environmental Services, Inc., *Report of Phase I Environmental Site Assessment: China Basin Landing Buildings, 185 Berry Street, San Francisco, California*, 94107, October 27, 1997, Project No. 52000-7-1215-03, pp. 14-19, 24.
37. Kathy Mattes, General Manager, China Basin Landing, memorandum to Barbara Sahm, EIP Associates, December 21, 1998, p. 1.
38. Law Engineering and Environmental Services, Inc., *Report of Phase I Environmental Site Assessment: China Basin Landing Buildings, 185 Berry Street, San Francisco, California*, 94107, October 27, 1997, Project No. 52000-7-1215-03, pp. 27-32.
39. Law Engineering and Environmental Services, Inc., *Report of Phase I Environmental Site Assessment: China Basin Landing Buildings, 185 Berry Street, San Francisco, California*, 94107, October 27, 1997, Project No. 52000-7-1215-03, p. 26.

40. Law Engineering and Environmental Services, Inc., *Report of Phase I Environmental Site Assessment: China Basin Landing Buildings, 185 Berry Street, San Francisco, California, 94107*, October 27, 1997, Project No. 52000-7-1215-03, p. 22.
41. San Francisco Ordinance 175-91, passed by the Board of Supervisors on May 6, 1991, requires that non-potable water be used for dust control activities. Therefore, contractors would obtain reclaimed water from the San Francisco City Clean Water Program.



## APPENDIX B. WIND

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## TECHNICAL MEMORANDUM

**TO:** **Hillary Gitelman**  
San Francisco Department of City Planning  
1660 Mission Street  
San Francisco, CA 94103

**FROM:** **Charles Bennett**  
Environmental Science Associates  
225 Bush Street, Suite 1700  
San Francisco, CA 94104

**DATE:** **October 5, 1999**

**SUBJECT:** **Potential Wind Conditions**  
**Proposed China Basin Landing Building Expansion Project**  
**San Francisco, California**  
**ESA 980303**

### I. INTRODUCTION AND OVERVIEW

A wind-tunnel test was performed for the proposed expansion of the Berry Building, one building of the two-building complex known as China Basin Landing, in order to define the wind environment that would exist in pedestrian and seating areas around the proposed project. The project is located on the block bounded by the China Basin Channel and by Third, Berry, and Fourth Streets, in the City of San Francisco. Pedestrian-level wind speeds were measured at selected points for the site as it presently exists and for the proposed project in the existing setting, to quantify resulting pedestrian-level winds in public spaces near the proposed project. An alternative design for the Berry Building was tested also, as was a cumulative development scenario that included the project.

Details of the background and test methods are presented in Section II, Background. Test results and discussion are presented in Section III, Study Results, and Section IV summarizes the findings and conclusions. An overview of the test results and conclusions follows.

#### *Test 1: Existing Setting*

The existing setting consists of all existing buildings together with the approved, but yet unbuilt or uncompleted buildings in the vicinity of the site. Approved, but yet unbuilt or uncompleted buildings include the San Francisco Giants Ballpark (under construction) and its adjacent Pavilion building<sup>1</sup> at Third and King Streets.

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<sup>1</sup> Note that there are design differences between the approved Ballpark complex and the Ballpark complex, including the current, smaller design, Pavilion building, taken here as a part of the Existing Setting.

The existing wind conditions are considered windy; the average wind speed for all 40 test points is nearly 15 mph. Wind speeds in pedestrian areas range from 5 mph to 21 mph. Wind speeds of 14 mph or more occur at 26 locations and wind speeds of 18 mph or more occur at 12 locations. The highest wind speeds in the vicinity (19 to 21 mph) occur west<sup>2</sup> of the project site on Berry Street, King Street and at the southwest corner of the Wharfside Building, on Fourth Street. See Figure 1.

Only three of the 40 locations do not exceed<sup>3</sup> the Planning Code's applicable pedestrian comfort or seating comfort criteria values. Wind speeds at three of the 35 pedestrian locations meet the pedestrian comfort criterion value of 11 mph and wind speeds at all 5 seating locations exceed the seating comfort criterion value of 7-mph.

The Code's wind hazard criterion is currently exceeded at five of the existing 40 locations: at the northeast corner of Second and King Streets; at two locations on Berry Street, one at Fourth Street and one west of Fourth Street; at the northwest corner of Fourth and King Streets; and, at the southwest corner of the Wharfside Building. The total duration of the existing exceedances of the hazard criterion is 56 hours per year.

#### *Test 2: Project in the Existing Setting*

The project scenario consists of the project added to the existing setting buildings.

With the project, overall wind conditions would not change substantially. With the project, wind conditions would be considered windy; the average wind speed for all 40 test points would remain nearly 15 mph. Wind speeds in pedestrian areas would range from 5 mph to 20 mph. Wind speeds of 14 mph or more would occur at 28 locations and wind speeds of 18 mph or more would occur at 11 locations. The highest wind speeds in the vicinity (19 to 20 mph) would continue to occur west of the project site on Berry Street, King Street and at the southwest corner of the Wharfside Building, on Fourth Street.

Compared to existing conditions, under the project, wind speeds would increase at 10 locations, remain unchanged at 18 locations and decrease at 12 locations.

Six of the 40 locations, three more than under the existing conditions, would meet the Planning Code's applicable pedestrian comfort or seating comfort criteria. Wind speeds at six of the 35 pedestrian locations would meet the pedestrian comfort criterion value of 11-mph; this is three more than under the Existing

<sup>2</sup> Directions used here refer to local north - south, which aligns with Third Street, and local east-west, which aligns with King Street. However, all wind directions stated are true directions.

<sup>3</sup> For brevity, the word "meet" will be used hereinafter as an equivalent to "do not exceed".

setting. None of the five seating locations would meet the seating comfort criterion value of 7-mph; this would be the same as under Existing conditions.

With the project, the Code's wind hazard criterion would be exceeded at seven locations. Four of the existing five exceedances would continue, with the total duration of these exceedances reduced to 46 hours per year, compared with the existing duration of 54 hours per year. The fifth existing exceedance, with a duration of 2 hours per year, at the corner of Fourth and King Streets would be eliminated. In addition, the project would create three new exceedances; one each on the east and west sides of Third Street at Berry Street, with durations of 5 and 1 hours per year, respectively, and one on the south side of King Street west of Fourth Street, with a duration of 3 hours per year. The total duration of the existing and new exceedances would be 55 hours per year, a decrease of 1 hour per year from the existing duration.

#### *Project Mitigation Measures*

Five existing hazard criterion exceedances, 32 pedestrian comfort criterion exceedances and 5 seating comfort criterion exceedances would occur under the Existing Setting. The project would reduce the number of existing exceedances of the pedestrian comfort criterion by three, would leave the number of existing exceedances of the seating comfort criterion unchanged, and would reduce the duration of hazard criterion exceedances by 1 hour per year. Given the existing windy conditions of the site and vicinity and the modest changes in wind conditions that can reasonably be expected from the project, it may not be possible to design any structure that fully meets the goals of the project and which fully reduces ambient wind speeds to meet Section 148 comfort criteria at all locations.

Three existing pedestrian comfort criterion exceedances would be eliminated and no new pedestrian comfort criterion exceedance would be caused by the Project, so no mitigation would be required for exceedances of the pedestrian comfort criterion.

No existing seating comfort criterion exceedances would be eliminated and no new seating comfort criterion exceedances would be caused by the Project, so no mitigation would be required for exceedances of the seating comfort criterion.

Three new hazard criterion exceedances would be caused by the project and one existing exceedance would be eliminated. The total hours of duration of all hazard criterion exceedances would be reduced by the project. No feasible mitigation is known that would eliminate the new exceedances of the hazard criterion.



*Test 3 Reduced-Development Alternative in the Existing Setting*

The Reduced-Development Alternative scenario consists of the addition of a single new story atop the Berry Building, within the existing setting.

With the reduced-development alternative, wind conditions would not change substantially compared to the wind conditions under the project scenario.

With the reduced-development alternative, wind conditions would be considered windy; the average wind speed for all 40 test points would decrease by about 1 mph compared to the project conditions, remaining near 14 mph. Wind speeds in pedestrian areas would range from 5 mph to 21 mph. Wind speeds of 14 mph or more would occur at 24 locations and wind speeds of 18 mph or more occur at 7 locations. The highest wind speeds in the vicinity (19 to 20 mph) would continue to occur west of the project site on Berry Street, at the intersection of Fourth and King Streets and at the southwest corner of the Wharfside Building, on Fourth Street.

Compared to project conditions, under the alternative, wind speeds would increase at six locations, remain unchanged at 10 locations and decrease at 24 locations.

Eight of the 40 locations, two more than under the project conditions, would meet the Planning Code's applicable pedestrian comfort or seating comfort criteria. Wind speeds at six of the 35 pedestrian locations would meet the pedestrian comfort criterion value of 11-mph; this is the same number as under the project. Wind speeds at 2 of the 5 seating locations would meet the seating comfort criterion value of 7-mph; this is 2 more than under the existing or the project conditions.

With the reduced-development alternative, the wind hazard criterion of the Planning Code would be exceeded at six locations. Exceedances of the hazard criterion would continue to occur at four of the same locations as under the project and existing conditions. The total duration of those existing exceedances would be reduced from about 54 hours to about 14 hours per year. The alternative would eliminate three project hazard criterion exceedances; one with a duration of 1 hour per year on the east side of Third Street at Berry Street and one on the west side of Third Street at Berry Street with a duration of 5 hours per year, and one on the south side of King Street west of Fourth Street with a duration of 3 hours per year. In addition, the reduced-development alternative would create one new exceedance with a duration of 6 hours per year at the southwest corner of the intersection of Third and Townsend Streets and another new exceedance with a duration of 24 hours per year at the northeast corner of King and Fourth Streets. The total duration of the exceedances under the alternative would be 44 hours per year, a decrease of 11 hours from the duration of 55 hours per year with the project.



*Test 4: Project plus Cumulative Development<sup>4</sup>*

The project plus Cumulative Development setting adds reasonably foreseeable future development to the project setting. In the future, the Mission Bay North development, with buildings of heights ranging from 50 feet to 160 feet, would fill the now-vacant lands north and west of the project site. This development was modeled using conceptual buildings over most of the area and recent designs for the N2 block across Berry Street from the Project. This is referred to here as the Cumulative Development scenario.

With the project plus cumulative development, wind speeds would be substantially reduced.

With the project plus cumulative development, wind conditions would be considered windy; the average wind speed for all 40 test points would decrease by about 3 mph, but would remain below 12 mph. Wind speeds in pedestrian areas would range from 5 mph to 20 mph. Wind speeds of 14 mph or more would occur at 12 locations and wind speeds of 18 mph or more occur at 4 locations. The highest wind speeds in the vicinity (19 to 20 mph) would occur west of the project site at the intersection of Fourth and King Streets and at the northeast corner of the Townsend and Third Streets.

Compared to project conditions, wind speeds under the project plus cumulative development would increase at eight locations, remain unchanged at one location and decrease at 31 locations.

Twenty-two of the 40 locations would meet the applicable wind comfort criteria. Seventeen of the 35 pedestrian locations, 11 more than under project conditions, would meet the Planning Code's pedestrian comfort criterion value of 11-mph, and all five seating locations (#66, 67, 68, 77, 78), five more than under project conditions, would meet the 7 mph seating comfort criterion.

Under project plus cumulative conditions, the Planning Code's wind hazard criterion would be exceeded at four of the 40 locations. Under project plus cumulative conditions, three existing exceedances and three project exceedances of the hazard criterion would be eliminated; the total duration of these eliminated exceedances would be about 36 hours per year. Under project plus cumulative conditions, two existing exceedances of the hazard criterion would continue to occur; their total duration would be reduced from 21 hours per year to 12 hours per

<sup>4</sup> Because this test is based on development concepts, it provides only an approximation of the wind effects of cumulative development. See the discussion under Wind Speed Profile Adjustments, in Section II, and details under TEST 4 - CUMULATIVE DEVELOPMENT WIND IMPACTS, in Section III..

year. Under the project plus cumulative scenario, two new exceedances of the hazard criterion would be created, one at the northwest corner of the Berry Building and one at the southwest corner of Third and Townsend Streets. The total duration of the two new exceedances would be 4 hours per year. The total duration of all four exceedances under the project plus cumulative scenario would be 15 hours per year, a reduction of 40 hours per year from the duration under the project scenario.

## II. BACKGROUND

Tall buildings and structures can strongly affect the wind environment for pedestrians. In cities, groups of structures tend to slow the winds near ground level, due to the friction and drag of the structures themselves. Buildings that are much taller than the surrounding buildings intercept and redirect winds that might otherwise flow overhead, and bring them down the vertical face of the building to ground level, where they create ground-level wind and turbulence. These redirected winds can be relatively strong and also relatively turbulent, and can be incompatible with the intended uses of nearby ground-level spaces.

In the project area, the general openness of the vicinity and the lack of buildings allows strong winds to reach the site with little attenuation. Moreover, because the China Basin Landing structure is relatively long, even though it is not tall, it presents a large area that can intercept the existing strong winds. As a result, it also can create ground-level winds that may prove to be hazardous to pedestrians in the vicinity. It is worth noting, however, that structural measures can be developed (usually overhead structures) to reduce the speed of the winds to levels that are acceptable. Wind-tunnel testing is necessary to determine whether or not unsuitably strong winds would be present after the project is built. Furthermore, testing can show the general effects of future cumulative development on the project and vicinity winds.

### Existing Climate and Wind Conditions

Average winds speeds in San Francisco are the highest in the summer and lowest in winter. However, the strongest peak winds occur in winter. The highest average wind speeds occur in mid-afternoon and the lowest in the early morning. Westerly to northwesterly winds are the most frequent and strongest winds during all seasons. Of the 16 primary wind directions, four have the greatest frequency of occurrence as well as they make up the majority of the strong winds; these are northwest, west-northwest, west and west-southwest winds.

Data describing the speed, direction, and frequency of occurrence of winds were gathered at the old San Francisco Federal Building at 50 United Nations Plaza (at a height of 132 ft.) during the six-year period, 1945 to 1950. Measurements taken hourly and averaged over one-minute periods have been tabulated for each month (averaged over the six years) in three-hour periods using seven classes of wind speed and 16 compass directions. Analysis of these data shows that during the hours from 6:00 a.m. to 8:00 p.m., about 70% of all winds blow from



five of the 16 directions, as follows: Northwest (NW), 10%; West Northwest (WNW), 14%; West (W), 35%; West Southwest (WSW), 2%; Southwest (SW), 9%; and all other winds, 28%. Calm conditions occur 2% of the time. More than 90% of measured winds over 13 mph blow from the NW, WNW, W, WSW, or SW.

### Wind Speed and Pedestrian Comfort<sup>5</sup>

The comfort of pedestrians varies under different conditions of sun exposure, temperature, clothing, and wind speed. Winds up to four miles per hour (mph) have no noticeable effect on pedestrian comfort. With winds from four to eight mph, wind is felt on the face. Winds from eight to thirteen mph will disturb hair, cause clothing to flap, and extend a light flag mounted on a pole. Winds from 13 to 19 mph will raise loose paper, dust and dry soil, and will disarrange hair. For winds from 19 to 26 mph, the force of the wind will be felt on the body. With 26 to 34 mph winds, umbrellas are used with difficulty, hair is blown straight, there is difficulty in walking steadily, and wind noise is unpleasant. Winds over 34 mph increase difficulty with balance and gusts can blow people over.

### City Planning Code Requirements

The project is not located in an area that is subject to the City Planning Code Section 148, Reduction of Ground-Level Wind Currents in C-3 (Downtown Commercial) Districts. However, this technical study was performed using the same wind testing, analysis and evaluation methods that would be used to determine conformity with Section 148 of the Code, the approach used to prepare environmental impact reports in San Francisco.

The City Planning Code Section 148, Reduction of Ground-Level Wind Currents in C-3 (Downtown Commercial) Districts, requires buildings to be shaped so as not to cause ground-level wind currents to exceed, more than 10% of the time, 11 mph in substantial pedestrian use areas, and 7 mph in public seating areas. Similarly, the Code requires that buildings not cause equivalent wind speeds to reach or exceed the hazard level of 26 mph as averaged for a single full hour of the year, or 0.011416% of the time. These comfort criteria are based on wind speeds that are measured for one minute and averaged. In contrast, the hazard criterion is based on winds that are measured for one hour and averaged; when stated on the same basis as the comfort criteria winds, the hazard criterion speed is a one-minute average of 36 mph.<sup>6</sup> The wind ordinance is defined in terms of equivalent wind speed.<sup>7</sup> This term denotes an average wind speed (mean velocity), adjusted to include the level of gustiness and turbulence.

<sup>5</sup> Lawson, T.V. and A.D. Penwarden, "The Effects of Wind on People in the Vicinity of Buildings," Proceedings of the Fourth International Conference on Wind Effects on Buildings and Structures, London, 1975, Cambridge University Press, Cambridge, U.K., 605-622 1976.

<sup>6</sup> Arens, E., "Designing for Acceptable Wind Environment," Transactions Engineering Journal, ASCE 107, No. TE 2, p. 127-141, 1981.

<sup>7</sup> Equivalent mean wind speed is defined as the mean wind, multiplied by the quantity (one plus three times the turbulence intensity) divided by 1.45.

### Model and Wind Testing Protocols

A 1 inch to 50 foot scale model of the Project site and surrounding several blocks was constructed in order to simulate the Project and its existing and future contexts. The scale model of the Project and surrounding area was provided by ESA. The Project design used was from plans provided by the project architects. The test model was constructed by ESA. The scale models were then tested in a boundary layer wind-tunnel facility at the University of California, Davis, under the direction of Dr. Bruce White. These tests, however, were performed independent of the University.

Wind-tunnel tests were conducted for four configurations<sup>8</sup>: 1) the Existing Setting, 2) the Project in the Existing Setting, 3) A Reduced-Development Alternative in the Existing Setting and 4) the Project in the likely Cumulative Development Setting. In accordance with the protocol for wind-tunnel testing in Section 148 of the Planning Code, each of these three configurations was wind-tunnel tested for each of four primary wind directions: northwest (NW), west-northwest (WNW), west (W) and west-southwest (WSW).

The test procedure consisted of orienting the selected configuration of the model in the boundary layer wind-tunnel and measuring the wind speed at each of the test locations with a hot-wire anemometer. The model was tested in a wind tunnel that allows testing of natural atmospheric boundary layer flow past surface objects such as buildings and other structures. The tunnel has an overall length of 22 meters (m) (72 feet), a test section of 1.22 m (4 feet) wide by 1.83 m (6 feet) high, and an adjustable false ceiling. The adjustable ceiling and turbulence generators allow speeds within the tunnel to vary from 1 meter per second (m/s) to 8 m/s, or 2.2 mph to 17.9 mph.

Wind-speed measurements at each test location were made with a hot-wire anemometer, an instrument that directly relates rates of heat transfer to wind speeds by electronic signals. The hot-wire signals are proportional to the magnitude and steadiness of the wind. The hot-wire probe is calibrated to an accuracy of within 2% before the test procedure is begun. The hot-wire probe measures the analog voltage for approximately 30 seconds at each test location. When converted to digital signals, this measurement provides approximately 30,000 individual voltage samples that are averaged and the root mean square calculated for each test location. These data, when converted to velocity using the calibration curves, provide the mean velocity and turbulence values used in the calculation of the equivalent wind speed.

By measuring both the mean wind speeds and corresponding turbulence intensities, high wind speeds and gustiness (changes in wind speeds over short periods of time) could be determined. The ratio of near-surface speed to reference wind speed was calculated from the hot-wire measurements. The inherent uncertainty of measurements made with the hot-wire

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<sup>8</sup> One set of tests was conducted on February 22, 1999. The Project was tested on August 25, 1999, at which time selected wind directions for 15 of the Existing Setting locations were retested. This report compares four scenarios: the Existing Setting, using data from the February and August tests; the Project from the August test; the Reduced-Development Alternative from the February test; and, the Project plus Cumulative scenario from the February test.



anemometer close to the surface of the model is  $\pm 5\%$  of the true values.

These values are compared with the free stream wind as measured in the wind-tunnel. As a result, each wind-tunnel measurement results in a ratio that relates the speed of ground-level wind to the speed at the reference elevation, in this case the height of the Old San Francisco Federal Building. These ratios are the output data from the wind-tunnel tests.

These output data are reduced using a computer program that evaluates the contribution from each tested wind direction to the total wind speed measured at each location for each wind direction. The program first adjusts the wind-tunnel output ratios to account for the differences between the boundary layer profile in the wind-tunnel and the profile as measured at the Old Federal Building located at 50 United Nations Plaza. The program then computes the equivalent wind speed that conforms to the selected criterion, either the wind speed exceeded 10% of the time or the wind speed exceeded one hour or more per year. The program also computes the percentage of time that the wind would exceed the speed criterion selected, and further computes the percentage contribution of each wind direction to the equivalent wind speed and to the excess of the criterion. In addition to the computations for each tested wind direction, the program computes an average ratio and uses this to compute statistics for "Other" winds, which accounts for all remaining wind directions.

The output of the computer program is presented in the Wind-Tunnel Test Results tables for normal winds and for hazardous winds. These tables, appended to this Memorandum, provide the detail of the data and of the intermediate results that are described above.

The wind tunnel ratios were included in the program input, and the results evaluated in the discussions that follow.

#### Wind Speed Profile Adjustments

The standard Section 148 wind test methodology implicitly assumes that the relationship between height above the ground and wind speed (referred to hereafter as the wind speed profile) is the same in the test area as at the Civic Center weather station. However, wind speed profiles vary from place to place, and the wind speed profiles for the China Basin area are known to differ from those at the Civic Center weather station where data were gathered.

Previously, wind-tunnel measurements of the wind speed profiles for NW, WNW, W and WSW winds were made for the China Basin area. Wind profile adjustment factors were estimated for those wind directions, based on those profile measurements and upon the methodology presented in the American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE) Handbook, Chapter 14. Based on data from the site's wind speed profiles and previously measured profiles for the Civic Center, the ASHRAE methodology was expanded to create two new categories intermediate to the four presented in

Chapter 14. Those categories were assigned for each of the four wind directions at the Old Federal Building meteorological station and for each of the four wind directions at the project site. The assignment provided the values used for alpha and delta, the power-law exponent and the boundary-layer thickness, respectively, and ultimately the factors for normalizing the Civic Center meteorological data to the wind speed at the project site. For China Basin sites, WSW wind speeds are reduced by about 27% and W wind speeds by 13%, while NW and WNW wind speeds are reduced by about 3% compared to winds in the Civic Center. The wind speeds reported below, in Section III. Test Cases and Study Results, reflect the use of these adjusted values. The addition of the extensive cumulative development could affect the wind speed profile structure in the vicinity, thus the results of the cumulative development case may report wind speeds that are too low. Because the cumulative development is not the subject of the wind test, added profile adjustments were not made for those tests.

### III. TEST CASES AND STUDY RESULTS

#### Introduction

Wind-tunnel tests were conducted for the four test scenarios. Forty test locations were studied for each of these four scenarios for the four prevailing wind directions: northwest, west-northwest, west, and southwest. These winds are the most common in San Francisco, and are therefore the most representative for evaluation of the proposed Project.

In general, the test locations focus on locations within the China Basin Landing Building complex, and on the sidewalks of Berry, King, Third and Fourth Streets. In addition, locations on Townsend Street, as well as some locations around the nearby San Francisco Giants Ballpark, were also tested. To facilitate comparison of this wind-tunnel test with the prior wind-tunnel tests<sup>9</sup> performed for the Giants Ballpark, twenty of the test points (#11-14, 17, 18, 20-23, 27, 29, 30, 37-40, 46, 48, 53), duplicate locations measured in that prior test<sup>10</sup>. In contrast, all test locations numbered 61 or higher are unique to this test.

Fourteen test locations (points) are located on the project site. Five points are located on Berry Street (#14, 61, 62, 63, 64), five points (#65, 66, 67, 68, 69), are located between the Berry Building and the Wharfside Building, and four points (13, 70, 77, 78), are located along the China Basin Channel.

Along Berry Street are eight locations (#14, 18, 61, 62, 63, 64, 71), with all but one (#18) on the south side of Berry Street. Seven points (#61, 69, 70, 76, 79, 71, 75) are located on Fourth Street between the China Basin Channel and King Streets, with two points (#71, 75) on the west side of Fourth and five points (#61, 69, 70, 76, 79) on the east side of Fourth.

<sup>9</sup> Environmental Science Associates, *Wind Tunnel Test and Evaluation of Pedestrian Wind Effects of the Proposed Pacific Bell Park, San Francisco, California*, ESA Technical Memorandum #960333, March 12, 1997.

<sup>10</sup> Note that the results of earlier wind tests of the Giants Ballpark differ from the results of this test, primarily because there are design differences between the Ballpark complex tested then and the Ballpark complex, including the smaller Pavilion building, tested here.



Fourteen locations (#11, 12, 13, 14, 17, 18, 20, 21, 22, 23, 27, 29, 30, 65) are located along Third Street, from south of the China Basin Channel to Townsend Street. Ten points (#11, 12, 14, 17, 18, 20, 22, 23, 29, 30) are on the east side of Third Street and four (#13, 21, 27, 65) are on the west side.

Fifteen points (#20-23, 37-40, 46, 73-76, 79, 80) are located along King Street from Fourth Street to Second Street. Five points (#22, 23, 79, 37, 38) are on the north side of the street, eight points (#20, 21, 46, 73, 74, 75, 76, 80) are on the south side of King Street, and two points (#39, 40) are in the median of King Street.

In addition, six points (#17, 18, 20, 46, 48, 53) are located around the Giants Ballpark. Three of these points (#17, 18, 20) front on Third Street, two (#48, 53) front on the Channel and one (#46) is at the northeast corner of the Giants Ballpark.

Note that these groupings, as well as others used in the discussions of existing conditions and project conditions, may include some individual locations in more than one group for discussion purposes.

For the purpose of identifying the applicable wind comfort criterion, five (#66, 67, 68, 77, 78) of the 40 locations are considered to be seating areas, subject to the 7 mph seating comfort criterion, while the remaining 35 test locations are considered to be pedestrian areas, subject to the 11 mph pedestrian comfort criterion.

#### Wind Evaluation and Criteria

Just as the wind-tunnel testing was performed in accordance with the test protocols of City Planning Code Section 148, the performance requirements of Code Section 148 were used to evaluate the results of the tests. The mean wind speeds are compared to the Code's comfort criteria of 11 mph for areas of substantial pedestrian use and 7 mph for seating areas, each not to be exceeded more than 10% of the time. Separate calculations evaluate compliance with the hazard criterion. As previously noted, the wind data observed at the Old San Francisco Federal Building are not full hour average speeds as identified by the Code, so it is necessary to adjust the wind criterion speed to obtain a valid comparison with the available data and the equivalent wind speeds based on those data. When normalized to the equivalent wind speeds used here, the hazard criterion speed is equal to 36 mph, the value used in the tables. Throughout the following discussion the wind speeds reported refer to the equivalent wind speeds that would be exceeded 10% of the time when referring to the comfort criteria, and about 0.011416% of the time when referring to the hazard criterion.

### Test Output

The basic wind-tunnel test data and the detailed outputs of the computer program are presented in tables that evaluate comfort criteria and hazard criteria for each of the four scenarios, Setting, Project, Reduced-Development Alternative and Cumulative Development. These output tables, appended to this Memorandum, provide the detail of the data and the intermediate results described above. The wind-tunnel ratios and the wind profile adjustment factors for each wind direction are included. The results evaluated in the discussions that follow.

Figure 1 identifies the measurement point locations. Summary information about the wind-tunnel test results and evaluations of compliance with the comfort and hazard criteria are presented for the existing Setting, Project, Cumulative and Reduced-Development Alternative scenarios in summary Tables 1 through 4. Tables 1 and 2 present the Comfort Analyses results, namely the measured 10%-exceeded wind speed and the percentage of time that the comfort criterion is exceeded for each test location and test scenario. Tables 3 and 4 present the Wind Hazard Analyses results, the equivalent wind speed and the number of hours per year of exceedance, if any, of the hazard criterion for each test location and test scenario.

Throughout the following discussion, references are made to values from these four Tables. Note that the times in hours and wind speeds in mph presented in those tables are rounded to the nearest integer value<sup>11</sup>. The sums, differences and averages presented also are rounded after calculations that are made using the actual (unrounded) values. As a result, what may appear to be discrepancies in the tabular results are simply due to the rounding of results.

### Discussion

Throughout the following discussion the wind speeds reported refer to the equivalent wind speeds that would be exceeded 10% of the time when referring to the Pedestrian Comfort Criterion and the Seating Comfort Criterion, and to the winds exceeded 1 hour per year when referring to the Hazard Criterion.

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<sup>11</sup> This gives results that also are consistent with the uncertainty limits inherent in the wind-tunnel test procedure.



## TEST 1 - THE EXISTING WIND ENVIRONMENT<sup>12</sup>

### *The Existing Setting*

The existing setting consists of all existing buildings together with the 201 Brannan Street building (under construction), on Brannan Street between Colin P. Kelly and Delancy Streets, the One Embarcadero South building (under construction) at the corner of Second and King Streets, and the approved, but yet uncompleted Giants Ballpark (under construction) at the corner of Third and King Streets. In addition to the Ballpark, the redesigned Giants Ballpark Pavilion building is included within the existing setting. The redesigned Pavilion is smaller than the design previously approved by the Planning Commission.

### *Comfort Criterion Conditions*

The existing wind conditions are considered windy; the average wind speed for all 40 test points is nearly 15 mph. Wind speeds of 14 mph or more occur at 26 locations and wind speeds of 18 mph or more occur at 12 locations (#14, 21, 22, 37, 70, 72-76, 79, 80). The highest wind speeds in the vicinity (19 to 21 mph) occur west<sup>13</sup> of the project site on Berry Street (#72), King Street (#73, 74) and at the southwest corner of the Wharfside Building, on Fourth Street (#70). See Figure 1 and Table 1.

Three of the 40 locations meet the Planning Code's applicable pedestrian comfort or seating comfort criteria. Wind speeds at three (#12, 13, 48) of the 35 pedestrian locations meet the pedestrian comfort criterion value of 11-mph and wind speeds at all 5 seating locations (#66-68, 77, 78) exceed the seating comfort criterion value of 7-mph.

Wind speeds at the fourteen points (#13, 14, 61-70, 77, 78) on the project site vary from 7 mph to 20 mph. Along the south side of Berry Street (#14, 61, 62, 63, 64), wind speeds range from 12 mph to 18 mph; the highest speed occurs at the northeast corner of the Berry Building (#14). None of these five meet the pedestrian comfort criterion. Wind speeds at the five points (#65, 66, 67, 68, 69) between the Berry Building and the Wharfside Building range from 11 mph to 14 mph, with none meeting the applicable wind comfort criterion. Wind speeds at three (#13, 77, 78) of the four points along the China Basin Channel range from 7 mph to 8 mph, while the fourth (#70) is 20 mph. One (#13) of these four locations meets the pedestrian comfort criterion of the Code, while one (#70) exceeds it and the other two (#77, 78) exceed the seating comfort criterion.

<sup>12</sup> These conclusions are based on the Section 148 methodology including adjustments to correct for differences in the wind structure at the project site and at the Civic Center. See Wind Speed Profile Adjustments, in Section II.

<sup>13</sup> Directions used here refer to local north - south, which aligns with Third Street, and local east-west, which aligns with King Street. However, all wind directions stated are true directions.

Wind speeds at the eight locations along Berry Street (#14, 18, 61, 62, 63, 64, 71, 72) range from 12 mph to 21 mph. The highest of these wind speeds occurs mid-block between Fourth and Fifth Streets (#72) and at the intersection with Third Street (#14, 18). None of the eight locations meet the pedestrian comfort criterion.

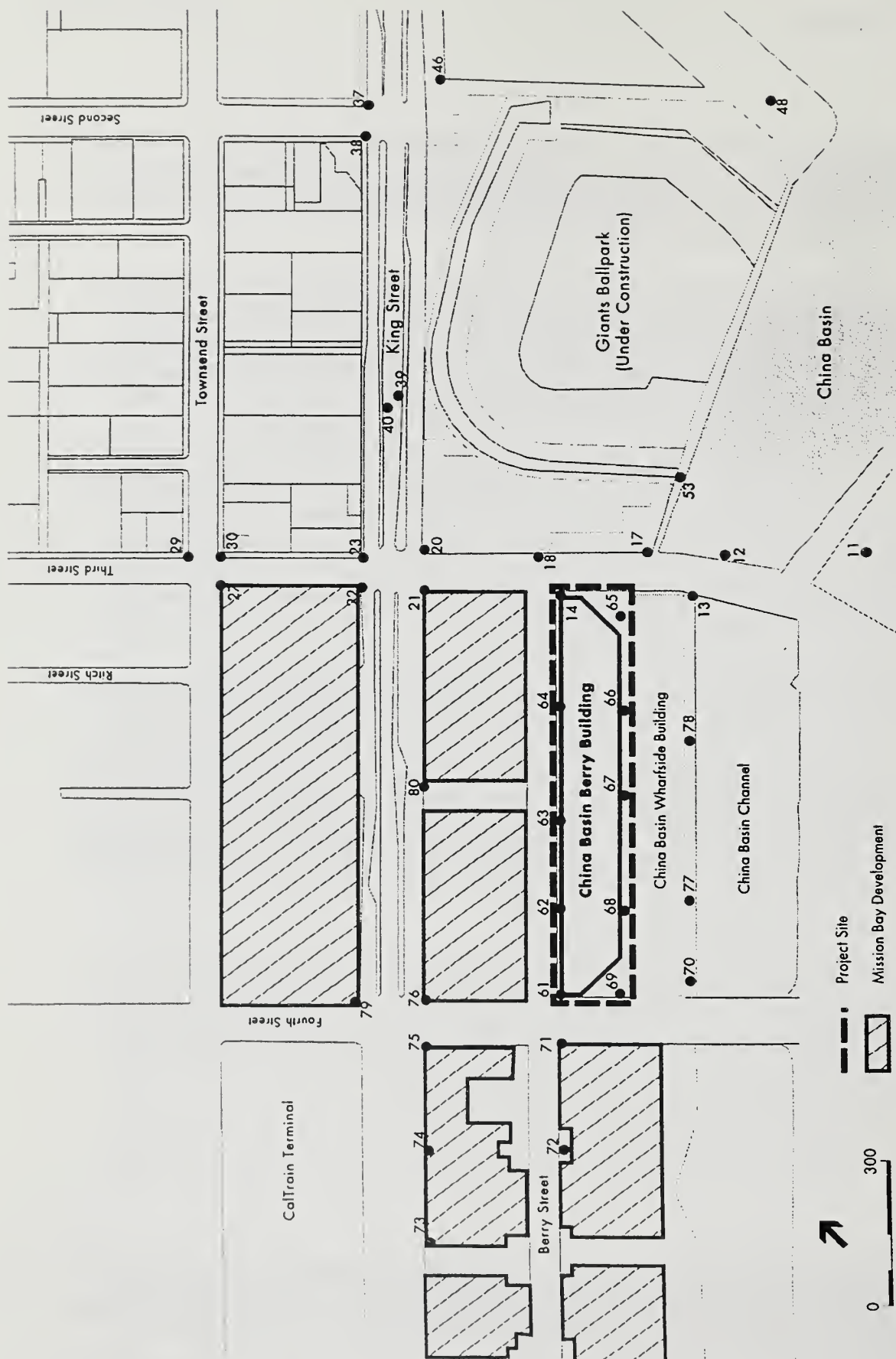
At the seven locations (#61, 69-71, 75, 76, 79) along Fourth Street between the China Basin Channel and King Streets, wind speeds range from 14 mph to 20 mph. The highest wind speed is 20 mph, at the southwest corner of the Wharfside Building; the three points (#75, 76, 79) at the intersection of Fourth and King Streets each have a wind speed of 18 mph. None of these seven locations meet the pedestrian comfort criterion.

Wind speeds range from 5 mph to 18 mph at the fourteen locations (#11-14, 17, 18, 20-23, 27, 29, 30, 65) along Third Street, from south of the China Basin Channel to Townsend Street 14. In general, wind speeds along Third Street are high in the open area south of the Channel, decrease near the project site, and increase again at King Street and decrease at Townsend Street. Wind speeds at one location (#13) on the project site and one on the Lefty O'Doul Bridge (#12) meet the pedestrian comfort criterion. None of the other 12 locations along Third Street meet the pedestrian comfort criterion.

Wind speeds range from 13 mph to 20 mph at the fifteen points along King Street from Fourth Street to Second Street. Five points (#22, 23, 79, 37, 38) are on the north side of the street, eight points (#20, 21, 46, 73, 74, 75, 76, 80) are on the south side of King Street, and two points (#39, 40) are in the median of King Street. In general, wind speeds along King Street are highest (20 mph) in the open areas west of Fourth Street, decrease at the intersection with Fourth Street (18 mph), increase mid-block between Fourth and Third Streets, decrease at the intersection with Third Street (16 to 18 mph), decrease further adjacent to the Giants Ballpark (13 to 15 mph), and then increase again east of the ballpark (17 to 19 mph). None of these locations meet the pedestrian comfort criterion.

Wind speeds range from 9 mph to 17 mph at the six points (#17, 18, 20, 46, 48, 53) located around the Giants Ballpark. At the three points (#17, 18, 20) on Third Street wind speeds range from 16 mph to 17 mph. At the two (#48, 53) points on the Channel, the wind speeds are 9 mph and 14 mph, and at the northeast corner of the Giants Ballpark (#46), the wind speed is 17 mph.

<sup>14</sup> Wind speeds for the Existing scenario are within 1 mph of the wind speeds for the Giants Ballpark (Project scenario) tests at 12 of the 20 corresponding locations. The exceptions are two points (#11, 20), where the existing wind speeds are 2 to 3 mph lower than speeds measured for the Giants Ballpark test, and five points (#14, 18, 22, 27, 37), where existing wind speeds are 2 to 7 mph higher than measured for the Ballpark test. The differences are attributed primarily to changes in the design of the Ballpark and of the current, smaller design, Pavilion building.



SOURCE: Environmental Science Associates

China Basin Landing / 980303

Figure 1

Wind Test Point Locations



**Table 1 - Comfort Analysis - Existing, Project and Cumulative Conditions**  
**Proposed China Basin Landing Building Expansion Project**  
**San Francisco, California**

References		Existing			Project				Project + Cumulative			
Location Number	Comfort Criterion Speed (mph)	Measured Equivalent Wind Speed (mph)	Percent of Time Wind Speed Exceeds Criterion	exceeds	Measured Equivalent Wind Speed (mph)	Percent of Time Wind Speed Exceeds Criterion	Speed Change Relative to Existing (mph)	exceeds	Measured Equivalent Wind Speed (mph)	Percent of Time Wind Speed Exceeds Criterion	Speed Change Relative to Project (mph)	exceeds
11	11	15	24	e	18	34	3	e	13	19	-5	=
12	11	5	0		5	1			6	2	1	
13	11	7	1		9	4	2		5	0	-4	
14	11	18	35	e	19	36	1	e	10	5	-9	-
17	11	16	26	e	14	17	-2	e	10	7	-4	-
18	11	17	32	e	16	26	-1	e	11	9	-5	-
20	11	16	31	e	16	29		e	12	16	-3	=
21	11	18	36	e	17	34	-1	e	12	14	-5	=
22	11	18	38	e	17	34		e	11	11	-6	-
23	11	17	36	e	17	34		e	9	4	-8	-
27	11	15	28	e	14	22	-1	e	19	40	5	=
29	11	15	24	e	15	23		e	15	25	1	=
30	11	14	24	e	14	22		e	17	37	3	=
37	11	19	36	e	19	37		e	18	34	-1	=
38	11	12	12	e	11	11		-	11	10		
39	11	15	27	e	11	11	-3	-	10	6	-2	
40	11	13	18	e	12	17		e	12	13	-1	=
46	11	17	35	e	17	34		e	16	29	-1	=
48	11	9	6		9	5			10	8	1	
53	11	14	21	e	13	17	-1	e	11	9	-2	-
61	11	14	24	e	14	23	-1	e	16	28	3	=
62	11	13	18	e	16	29	3	e	13	16	-3	=
63	11	12	17	e	16	28	3	e	11	9	-5	-
64	11	13	17	e	16	26	3	e	11	10	-5	-
65	11	12	13	e	8	2	-4	-	5	0	-2	
66	7	11	33	e	9	19	-2	e	6	0	-3	-
67	7	12	37	e	8	15	-5	e	5	0	-3	-
68	7	12	40	e	16	50	5	e	6	0	-10	-
69	11	14	24	e	15	26	1	e	10	7	-5	-
70	11	20	39	e	20	39		e	15	22	-5	=
71	11	14	18	e	19	39	5	e	10	8	-9	-
72	11	21	48	e	20	45	-1	e	11	11	-9	-
73	11	20	47	e	20	46		e	13	21	-7	=
74	11	20	47	e	20	44		e	14	23	-6	=
75	11	18	41	e	18	40		e	19	39	1	=
76	11	18	37	e	18	39		e	14	24	-3	=
77	7	8	14	e	8	18		e	6	2	-2	-
78	7	8	14	e	9	18	1	e	6	1	-3	-
79	11	18	34	e	17	31	-1	e	20	43	3	=
80	11	19	41	e	19	41		e	14	19	-5	=
Average mph / %		14.6	27%		14.7	27%	0.1		11.5	14%	-2.7	
Exceedances:		Total	37		Total	34			Total	18		
Counts:		Existing	37	e	Existing Exceedance	34	e		Prior Exceedance	18	=	
					New, Due to Project	0			New, Due to Cumulative	0	+	
					New, at new Location	0	#		New, at new Location	0	#	
					Exceedance Eliminated	3	-		Exceedance Eliminated	16	-	

**Table 2 - Comfort Analysis - Existing, Project and Reduced Alternative Conditions**  
**Proposed China Basin Landing Building Expansion Project**  
**San Francisco, California**

References		Existing			Project				Reduced Alternative			
Location Number	Comfort Criterion Speed (mph)	Measured Equivalent Wind Speed (mph)	Percent of Time Wind Speed Exceeds Criterion	exceeds	Measured Equivalent Wind Speed (mph)	Percent of Time Wind Speed Exceeds Criterion	Speed Change Relative to Existing (mph)	exceeds	Measured Equivalent Wind Speed (mph)	Percent of Time Wind Speed Exceeds Criterion	Speed Change Relative to Project (mph)	exceeds
11	11	15	24	e	18	34	3	e	15	25	-3	=
12	11	5	0		5	1			5	0		
13	11	7	1		9	4	2		5	0	-4	
14	11	18	35	e	19	36	1	e	16	30	-3	=
17	11	16	26	e	14	17	-2	e	15	24	1	=
18	11	17	32	e	16	26	-1	e	15	27	-1	=
20	11	16	31	e	16	29		e	15	24	-1	=
21	11	18	36	e	17	34	-1	e	15	27	-2	=
22	11	18	38	e	17	34		e	15	25	-2	=
23	11	17	36	e	17	34		e	15	24	-2	=
27	11	15	28	e	14	22	-1	e	16	29	2	=
29	11	15	24	e	15	23		e	15	23		=
30	11	14	24	e	14	22		e	15	26	1	=
37	11	19	36	e	19	37		e	18	35	-1	=
38	11	12	12	e	11	11		-	11	11		
39	11	15	27	e	11	11	-3	-	11	11		
40	11	13	18	e	12	17		e	13	18		=
46	11	17	35	e	17	34		e	17	33	-1	=
48	11	9	6		9	5			9	6		
53	11	14	21	e	13	17	-1	e	12	12	-1	=
61	11	14	24	e	14	23	-1	e	14	25		=
62	11	13	18	e	16	29	3	e	13	18	-3	=
63	11	12	17	e	16	28	3	e	13	17	-3	=
64	11	13	17	e	16	26	3	e	13	17	-3	=
65	11	12	13	e	8	2	-4	-	8	1		
66	7	11	33	e	9	19	-2	e	9	2		=
67	7	12	37	e	8	15	-5	e	7	0	-1	-
68	7	12	40	e	16	50	5	e	12	13	-4	=
69	11	14	24	e	15	26	1	e	14	27	-1	=
70	11	20	39	e	20	39		e	21	46	1	=
71	11	14	18	e	19	39	5	e	14	18	-5	=
72	11	21	48	e	20	45	-1	e	20	42		=
73	11	20	47	e	20	46		e	18	42	-2	=
74	11	20	47	e	20	44		e	18	41	-2	=
75	11	18	41	e	18	40		e	19	41	1	=
76	11	18	37	e	18	39		e	16	33	-2	=
77	7	8	14	e	8	18		e	6	2	-2	-
78	7	8	14	e	9	18	1	e	8	2	-1	=
79	11	18	34	e	17	31	-1	e	19	35	2	=
80	11	19	41	e	19	41		e	16	33	-2	=
Average mph / %		14.6	27%		14.7	27%	0.1		13.6	22%	-1.0	
Exceedances:		Total	37		Total	34			Total	32		
Counts:		Existing	37	e	Existing	34	e		Prior Exceedance	32	=	
					New, Due to Project	0	+		New, Due to Alternative	0	+	
					New, at new Location	0	#		New, at new Location	0	#	
					Exceedance Eliminated	3	-		Exceedance Eliminated	2	-	

*Hazard Conditions*

The wind hazard criterion is currently exceeded at five of the existing 40 locations. Exceedances of the hazard criterion occur at the northeast corner of Second and King Streets (#37, 19 hours per year), at two locations on Berry Street, at and west of Fourth Street (#71, 4 hours per year; #72, 5 hours per year), at the northwest corner of Fourth and King Streets (#79, 2 hours per year) and at the southwest corner of the Wharfside Building (#70, 27 hours per year). The total duration of the existing exceedances is about 56 hours per year. See Table 3.

**TEST 2 - PROJECT WIND IMPACTS***Project in the Existing Setting*

The project setting consists of the project model, developed from plans provided by the project architects, Fisher Freidman Associates, and added to the existing setting for the test.

*Comfort Criterion Conditions*

With the project, wind conditions would not change substantially.

With the project, wind conditions would be considered windy; the average wind speed for all 40 test points would remain nearly 15 mph. Wind speeds of 14 mph or more would occur at 28 locations and wind speeds of 18 mph or more occur at 11 locations (#11, 14, 37, 70-76, 80). The highest wind speeds in the vicinity (19 to 20 mph) would continue to occur west of the project site on Berry Street (#71, 72), King Street (#73, 74) and at the southwest corner of the Wharfside Building, on Fourth Street (#70). See Figure 1 and Table 1.

Six of the 40 locations would meet the applicable wind comfort criteria. Six of the 35 pedestrian locations (#12, 13, 38, 39, 48, 65), three more than under the existing conditions (#38, 39, 65); would meet the Planning Code's pedestrian comfort criterion value of 11 mph. None of the five seating locations would meet the seating comfort criterion of 7 mph, the same as under the existing conditions.

Compared to existing conditions, under the project, wind speeds would increase at 10 locations, remain unchanged at 18 locations and decrease at 12 locations.

Wind speeds at the fourteen points (#13, 14, 61-70, 77, 78) on the project site would vary from 6 mph to 20 mph. Along the south side of Berry Street (#14, 61, 62, 63, 64), wind speeds would range from 14 mph to 19 mph, increased by 1 mph to 3 mph from the existing



conditions. Decreases of 2 mph to 5 mph would occur at the three points (#65-67) in the east half of the space between the Berry Building and the Wharfside Building, while wind speeds at the next point west (#68) would increase by 5 mph. Wind speeds at the five points (#65, 66, 67, 68, 69) between the Berry Building and the Wharfside Building would range from 8 mph to 16 mph. Winds at the three seating locations here (#66-68) would not meet the seating comfort criterion, while winds at one location (#65) would meet the pedestrian comfort criterion. This would be the same number of exceedances of the seating comfort criterion as under the setting. Wind speeds at the four points along the China Basin Channel would increase by up to 2 mph. The range of wind speeds would then be from 8 mph to 20 mph. Neither of the two seating locations would meet the seating comfort criterion, while one of the two pedestrian locations would continue to exceed the pedestrian comfort criterion of the Code and the other would continue to meet it.

Wind speeds at all eight locations along Berry Street (#14, 18, 61, 62, 63, 64, 71, 72) would change by -1 mph to 5 mph, and would range from 12 mph to 20 mph. Wind speeds would change by 1 mph at the two points at Third Street, while wind speeds would increase by 3 mph at the three mid-block points. Wind speeds at the point (#71) at the southwest corner of Fourth and Berry Streets would increase by 5 mph, to a speed of 19 mph. Wind speeds would decrease by 1 mph at two points (#61, 72). The highest of the wind speeds would occur at and west of Fourth Street (#71, 72) and at the intersection with Third Street (#14). None would meet the pedestrian comfort criterion.

Wind speeds at six of the seven locations along Fourth Street between the China Basin Channel and King Streets would remain unchanged or within 1 mph of existing wind speeds; wind speeds would range from 14 mph to 20 mph. The highest wind speed would continue to be 20 mph, at the southwest corner of the Wharfside Building (#70); the three points (#75, 76, 79) at the intersection of Fourth and King Streets each would continue to have wind speeds of 17 and 18 mph. None of these seven locations would meet the pedestrian comfort criterion.

Wind speeds would range from 5 mph to 19 mph at the fourteen locations along Third Street, from south of the China Basin Channel to Townsend Street. Wind speeds would remain unchanged or within 1 mph of the existing wind speeds at all but four locations. Three of those are near the east end of the China Basin Landing Building (#13, 17, 65) where wind speeds would increase by 2 mph, decrease by 2 mph and decrease by 4 mph, respectively. The other is south of the Lefty O'Doul Bridge, along Third Street (#11), where the speed would increase by 3 mph, to become 18 mph. In general, wind speeds along Third Street would be high in the open area south of the Channel, decrease near the project site, and increase again at King Street and decrease at Townsend Street. Wind speeds at two locations on and near the Lefty O'Doul Bridge (#13, 12) would continue to meet the pedestrian comfort criterion. Wind speeds at one location on the project site (#65) would decrease by 4 mph, to below the pedestrian comfort criterion. None of the other eleven locations along Third Street would meet the pedestrian comfort criterion.

Wind speeds would range from 12 mph to 20 mph at the fifteen points along King Street from Fourth Street to Second Street. Wind speeds would remain unchanged or within 1 mph of the existing wind speeds at fourteen points, and would decrease by 3 mph at one point (#39) in the median of King Street. In general, wind speeds along King Street would be highest (20 mph) in the open areas west of Fourth Street, decrease at the intersection with Fourth Street (18 mph), increase mid-block between Fourth and Third Streets, decrease at the intersection with Third Street (16 to 17 mph) and adjacent to the Giants Ballpark (12 to 13 mph), and then increase again east of the ballpark (17 to 19 mph). None of these locations would meet the pedestrian comfort criterion.

Wind speeds would range from 9 mph to 18 mph at the six points (#17, 18, 20, 46, 48, 53) located around the Giants Ballpark. At the three points (#17, 18, 20) on Third Street wind speeds would decrease by 2 mph, decrease by 1 mph and remain unchanged, respectively, and would range from 14 mph to 16 mph. At the two (#48, 53) points on the Channel, the wind speeds would remain unchanged and decrease by 1 mph, respectively, to become 9 mph and 13 mph. At the northeast corner of the Giants Ballpark (#46), the wind speed would remain unchanged at 17 mph. One (#48) of the six points would meet the pedestrian comfort criterion. This would be the same number as under the existing conditions.

#### *Hazard Conditions*

With the project, the wind hazard criterion would be exceeded at seven of the 40 locations. Exceedances of the hazard criterion would continue to occur at the northeast corner of Second and King Streets (#37, 19 hours per year), at two locations on Berry Street, at and west of Fourth Street (#71, 1 hour per year; #72, 1 hour per year), and at the southwest corner of the Wharfside Building (#70, 25 hours per year). The total duration of the existing exceedances would be reduced from 56 hours to 46 hours per year.

The project would eliminate one existing exceedance, at the northwest corner of Fourth and King Streets (#79, 2 hours per year).

In addition, the project would create three new exceedances; one on the east side of Third Street at Berry Street (#18, 1 hour per year), one on the west side of Third Street at Berry Street (#14, 1 hour per year) and one on King Street west of Fourth Street (#74, 3 hours per year).

The total duration of the existing and new exceedance would be 55 hours per year, a decrease of 1 hour per year from the existing conditions. See Table 3.



## Project Wind Mitigation Measures

### *Discussion*

Under Section 148 of the City Planning Code<sup>15</sup>, new buildings and additions to buildings may not cause ground-level winds to exceed the wind comfort criteria values more than ten percent of the time year round between 7:00 a.m. and 6:00 p.m. If existing wind speeds exceed the comfort level, new buildings and additions must be designed to reduce ambient wind speeds to meet the requirements. Section 148 also establishes a hazard criterion, which is a 26 mph hourly-average<sup>16</sup> equivalent wind speed for a single full hour. Buildings may not cause winds that meet or exceed this criterion.

Siting of large structures is expected to change wind flows, speeding up the wind at some locations and slowing it elsewhere in the vicinity. A structure placed in a windy site can be expected to change the locations at which criterion exceedances occur. Experience indicates it is common for buildings to eliminate some existing exceedances and create others. In practice it is not always possible to mitigate such remaining exceedances (as required by the language of the Planning Code ).

In this case, five existing hazard criterion exceedances, 32 pedestrian comfort criterion exceedances and five seating comfort criterion exceedances would occur under the Existing Setting. The project would eliminate three pedestrian comfort criterion exceedances, leave the number of seating comfort exceedances unchanged and create no new comfort criterion exceedances. The project would create three new hazard criterion exceedances, with a total duration of 9 hours per year. At the same time the project would eliminate one existing exceedance with a duration of 2 hours per year and reduce the duration of the remaining existing exceedances by about 10 hours per year. The total duration of hazard criterion exceedances would be 55 hours per year, a reduction of 1 hour compared with the existing duration of 56 hours per year.

By this comparison, the project would reduce the number of existing exceedances of the pedestrian comfort criterion by three, leave the number of existing seating comfort criterion exceedances unchanged, and would reduce the duration of hazard criterion exceedances by 1 hour per year. Given the existing windy conditions of the site and vicinity and the modest changes in wind conditions that can reasonably be expected from the project, it may not be possible to design any structure that fully meets the goals of the project and which fully reduces ambient wind speeds to meet Section 148 comfort criteria at all locations.

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<sup>15</sup> Note that the project is not located in an area that is subject to City Planning Code Section 148, but the wind analysis follows that methodology for EIRs.

<sup>16</sup> The 26 mph hourly-average is the functionally the same as the 36 mph criterion speed in Tables 3 and 4.



**Table 3 - Wind Hazard Analysis -Existing, Project and Cumulative Conditions  
Proposed China Basin Landing Building Expansion Project  
San Francisco, California**

References		Existing			Project				Project + Cumulative			
Location Number	Wind Hazard Criterion Speed (mph)	Measured Equivalent Wind Speed (mph)	Hours per year Wind Speed Exceeds Hazard Criterion	exceeds	Measured Equivalent Wind Speed (mph)	Hours per year Wind Speed Exceeds Hazard Criterion	Hours Change Relative to Setting	exceeds	Measured Equivalent Wind Speed (mph)	Hours per year Wind Speed Exceeds Hazard Criterion	Hours Change Relative to Project	exceeds
11	36	30			33				30			
12	36	13			16				18			
13	36	19			17				19			
14	36	34			39	5	5	+	17		-5	-
17	36	34			30				26			
18	36	33			37	1	1	+	23		-1	-
20	36	29			29				23			
21	36	35			32				21			
22	36	33			34				24			
23	36	30			31				21			
27	36	26			23				37	2	2	+
29	36	30			30				28			
30	36	26			26				29			
37	36	42	19	e	42	19	-0	e	37	2	-17	=
38	36	24			24				21			
39	36	30			26				21			
40	36	29			26				24			
46	36	34			34				29			
48	36	25			25				28			
53	36	25			22				18			
61	36	28			27				37	2	2	+
62	36	25			29				27			
63	36	24			29				26			
64	36	23			27				19			
65	36	19			19				12			
66	36	20			18				11			
67	36	23			17				9			
68	36	21			29				16			
69	36	26			29				20			
70	36	43	27	e	43	25	-2	e	32		-25	-
71	36	38	4	e	36	1	-2	e	21		-1	-
72	36	38	5	e	37	1	-4	e	19		-1	-
73	36	35			34				23			
74	36	35			38	3	3	+	25		-3	-
75	36	36			31				32			
76	36	35			33				24			
77	36	24			19				23			
78	36	23			18				23			
79	36	37	2	e	33		-2	-	40	10	10	+
80	36	36			35				24			
Average mph / hr		29.3	56		28.9	55	-0.9		24.0	15	-40.0	
Exceedances:		Total	5		Total	7			Total	4		
Counts:		Existing	5	e	Existing Exceedance	4	e		Prior Exceedance	1	=	
					New, Due to Project	3	+		New, Due to Cumulative	3	+	
					New, at new Location	0	#		New, at new Location	0	#	
					Exceedance Eliminated	1	-		Exceedance Eliminated	6	-	

**Table 4 - Wind Hazard Analysis -Existing, Project and Reduced Alternative Conditions  
Proposed China Basin Landing Building Expansion Project  
San Francisco, California**

References		Existing			Project				Reduced Alternative			
Location Number	Wind Hazard Criterion Speed (mph)	Measured Equivalent Wind Speed (mph)	Hours per year Wind Speed Exceeds Hazard Criterion	exceed	Measured Equivalent Wind Speed (mph)	Hours per year Wind Speed Exceeds Hazard Criterion	Hours Change Relative to Setting	exceed	Measured Equivalent Wind Speed (mph)	Hours per year Wind Speed Exceeds Hazard Criterion	Hours Change Relative to Project	exceed
11	36	30			33				30			
12	36	13			16				12			
13	36	19			17				17			
14	36	34			39	5	5	+	27		-5	-
17	36	34			30				30			
18	36	33			37	1	1	+	28		-1	-
20	36	29			29				26			
21	36	35			32				27			
22	36	33			34				27			
23	36	30			31				27			
27	36	26			23				39	6	6	+
29	36	30			30				30			
30	36	26			26				31			
37	36	42	19	e	42	19	-0	e	40	7	-11	=
38	36	24			24				23			
39	36	30			26				29			
40	36	29			26				29			
46	36	34			34				31			
48	36	25			25				25			
53	36	25			22				22			
61	36	28			27				33			
62	36	25			29				23			
63	36	24			29				23			
64	36	23			27				23			
65	36	19			19				15			
66	36	20			18				14			
67	36	23			17				12			
68	36	21			29				22			
69	36	26			29				33			
70	36	43	27	e	43	25	-2	e	36	1	-23	=
71	36	38	4	e	36	1	-2	e	37	3	2	=
72	36	38	5	e	37	1	-4	e	37	3	2	=
73	36	35			34				33			
74	36	35			38	3	3	+	34		-3	-
75	36	36			31				35			
76	36	35			33				34			
77	36	24			19				25			
78	36	23			18				23			
79	36	37	2	e	33		-2	-	43	24	24	+
80	36	36			35				29			
Average mph / hr		29.3	56		28.9	55	-0.9		27.9	44	-11.3	
Exceedances:		Total	5		Total	7			Total	6		
Counts:		Existing	5	e	Existing Exceedance	4	e		Prior Exceedance	4	=	
					New, Due to Project	3	+		New, Due to Alternative	2	+	
					New, at new Location	0	#		New, at new Location	0	#	
					Exceedance Eliminated	1	-		Exceedance Eliminated	3	-	

### Mitigation Measures

No new pedestrian comfort criterion exceedance or seating comfort criterion exceedance would be caused by the Project, so no mitigation would be required for exceedances of those comfort criteria.

Three additional hazard criterion exceedances would be caused by the project and one existing exceedance would be eliminated. The total hours of duration of all hazard criterion exceedances would be reduced by the project. No feasible mitigation is known that would eliminate the new exceedances of the hazard criterion.

### TEST 3 - REDUCED DEVELOPMENT ALTERNATIVE WIND IMPACTS

#### *Alternative in the Existing Setting*

The Reduced-Development Alternative setting consists of the project alternative model, developed from concepts provided by the Planning Department, Major Environmental Analysis Section, and added to the existing setting for the test.

#### *Comfort Criterion Conditions*

With the alternative, wind conditions would not change substantially from project wind conditions.

With the reduced-project alternative, wind conditions would be considered windy; the average wind speed for all 40 test points would decrease by about 1 mph compared to the project conditions, remaining near 14 mph. Wind speeds of 14 mph or more would occur at 24 locations and wind speeds of 18 mph or more occur at 7 locations (#37, 70, 72-75, 79). The highest wind speeds in the vicinity (19 to 20 mph) would continue to occur west of the project site on Berry Street (#72), at the intersection of Fourth and King Streets (#79) and at the southwest corner of the Wharfside Building, on Fourth Street (#70). See Figure 1 and Table 2.

Eight of the 40 locations would meet the applicable wind comfort criteria. Six of the 35 pedestrian locations (#12, 13, 38, 39, 48, 65), the same number as under the project conditions, would meet the Planning Code's pedestrian comfort criterion value of 11 mph, and two of the 5 seating locations (#67, 77), two more than under the project conditions, would meet the seating comfort criterion of 7 mph.

Compared to project conditions, under the alternative, wind speeds would increase at six



locations, remain unchanged at 10 locations and decrease at 24 locations.

Wind speeds at the fourteen points (#13, 14, 61-70, 77, 78) on the project site would vary from 5 mph to 21 mph. Along the south side of Berry Street (#14, 61, 62, 63, 64), wind speeds would range from 13 mph to 16 mph, about 3 mph less at four of the five points than under the project conditions. Decreases of 1 mph and 4 mph would occur at the two points (#68-69) in the west end of the space between the Berry Building and the Wharfside Building, while wind speeds at the east end (#65, 66) would remain unchanged, compared to project conditions. Wind speeds at the five points (#65, 66, 67, 68, 69) between the Berry Building and the Wharfside Building would range from 7 mph to 14 mph, and winds at one location (#67) would continue to meet the seating comfort criterion, while one (#66) would exceed it. This would be the same number of exceedances of the pedestrian comfort criterion and one fewer exceedance of the seating comfort criterion than under project conditions. Wind speeds at the westernmost point (#70) along the China Basin Channel would increase by 1 mph, while the other three would decrease by 1 mph to 4 mph. The range of wind speeds there would then be from 5 mph to 21 mph. Under the alternative, one (#77) of the four locations would meet the seating comfort criterion and one (#78) would exceed it, while one (#70) would continue to exceed the pedestrian comfort criterion of the Code and one (#13) would continue to meet it.

Wind speeds at five of the eight locations along Berry Street (#14, 18, 61, 62, 63, 64, 71) would decrease by 3 mph to 5 mph, while one would decrease by 1 mph and two would remain unchanged, compared to the project. Speeds would range from 13 mph to 20 mph. The highest would occur mid-block between Fourth and Fifth Streets (#72) and at Third Street (#14, 18). None would meet the pedestrian criterion.

Wind speeds at three of the seven locations along Fourth Street between the China Basin Channel and King Streets would decrease by 1 mph to 5 mph, increase 1 mph to 2 mph at three locations, and remain unchanged at one location; wind speeds would range from 14 mph to 21 mph. The highest wind speed would continue to be 21 mph, at the southwest corner of the Wharfside Building; the three points (#75, 76, 79) at the intersection of Fourth and King Streets each would have wind speeds of 16 mph to 19 mph. None of these seven locations would meet the pedestrian comfort criterion.

Wind speeds would range from 5 mph to 16 mph at the fourteen locations along Third Street, from south of the China Basin Channel to Townsend Street. Wind speeds would decrease by 3 mph to 4 mph at three locations, decrease 2 mph at three locations, decrease by 1 mph at two locations and would increase by 1 mph to 2 mph at three locations. The decreases of 3 to 4 mph would occur south of Berry Street, while the decreases of 1 to 2 mph would occur in the area from the Berry building into the intersection of Third and Kings Streets (#18, 20, 21, 22, 23). Increases would occur at the intersection Third and Townsend (#27, 30), where the speed would increase by 2 mph and 1 mph, respectively, to become 16 mph and 15 mph. In

general, wind speeds along Third Street would remain high in the open area south of the Channel, decrease near the project site, and increase again from the project site to Townsend Street. Just as under project conditions, with the alternative, wind speeds at two locations (#13, 65) on the project site and one on the Lefty O'Doul Bridge (#12) would continue to meet the pedestrian comfort criterion. None of the other eleven locations along Third Street would meet the pedestrian comfort criterion.

Wind speeds would range from 11 mph to 19 mph at the fifteen points along King Street from Fourth Street to Second Street. Wind speeds would remain unchanged at three points and would decrease by 2 mph at seven points (#21-23, 73, 74, 76, 80), decrease by 1 mph at two points (#37, 46), and increase by 1 mph and 2 mph at two points (#75, 79) along King Street. In general, wind speeds along King Street would be highest (19 mph) in the open areas west of Fourth Street and at the intersection with Fourth Street, decrease at the intersection with Third Street (15 mph) and adjacent to the Giants Ballpark (11 to 13 mph), and then increase again east of the ballpark (17 to 18 mph). Two (#38, 39) of these locations would meet the pedestrian comfort criterion.

Wind speeds would range from 9 mph to 17 mph at the six points (#17, 18, 20, 46, 48, 53) located around the Giants Ballpark. At the three points (#17, 18, 20) on Third Street wind speeds would increase by 1 mph, decrease by 1 mph and decrease by 1 mph, respectively, and would all become 15 mph. At the two (#48, 53) points on the Channel, the wind speeds would remain unchanged and decrease by 1 mph, respectively, to become 9 mph and 12 mph, and at the northeast corner of the Giants Ballpark (#46), the wind speed would remain unchanged at 17 mph. One (#48) of these six points would meet the pedestrian comfort criterion. This would be the same as under the project conditions.

#### *Hazard Conditions*

With the reduced-development alternative, the wind hazard criterion would be exceeded at six of the 40 locations. Exceedances of the hazard criterion would continue to occur at four of the same locations as under the project. The total duration of those four existing exceedances would be reduced from 46 hours to 14 hours per year.

The alternative would eliminate three project exceedances; two at the intersection of Third and Berry Streets (#14, 5 hours per year; #18, 1 hour per year) and one on King Street west of Fourth (#74, 3 hours per year). The alternative would create two new exceedances; one at the southwest corner (#27, 6 hours per year) of the intersection of Third and Townsend and one at the northeast corner (#79, 24 hours per year) of the intersection of King and Fourth Streets.

The total duration of the six existing and new exceedances would be 44 hours per year, a decrease in duration of about 11 hours per year from the project condition. See Table 4.



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## TEST 4 - CUMULATIVE DEVELOPMENT WIND IMPACTS<sup>17</sup>

### *Project with Cumulative Development*

The project plus cumulative development setting adds reasonably foreseeable future development to the project setting. In the future, the Mission Bay North development, with buildings up to 160 feet high, would occupy part or all of Assessor's Blocks 3795 to 3798 and 3803 to 3805, most of the now-vacant lands west and north of the project site. This future development was modeled using the conceptual buildings over most of the area and recent designs for the south portion of Assessor's Block 3795, the N2 block between King, Berry, Third and Fourth Street (see Figure 2). This represents the Cumulative Development scenario.

### *Comfort Criterion Conditions*

With the project plus cumulative development, wind speeds would be substantially reduced. In the following discussion, special attention will be given to noting changes in wind conditions relative to the project conditions.

With the project plus cumulative development, wind conditions would be considered windy; the average wind speed for all 40 test points would decrease by about 3 mph, but would remain above 11 mph. Wind speeds of 14 mph or more would occur at 12 locations and wind speeds of 18 mph or more occur at 4 locations (#27, 37, 75, 79). The highest wind speeds in the vicinity (19 to 20 mph) would occur west of the project site on at the intersection of Fourth and King Streets (#75, 79) and at the southwest corner of the Townsend and Third Streets (#27). See Figure 1 and Table 1.

Twenty-two of the 40 locations would meet the applicable wind comfort criteria. Seventeen of the 35 pedestrian locations (#12, 13, 14, 17, 18, 22, 23, 38, 39, 48, 53, 63, 64, 65, 69, 71, 72), 11 more than under project conditions, would meet the Planning Code's pedestrian comfort criterion value of 11-mph, and all five seating locations (#66, 67, 68, 77, 78), five more than under project conditions, would meet the 7 mph seating comfort criterion.

Compared to project conditions, wind speeds under the project plus cumulative development would increase at eight points, remain unchanged at one point and decrease at 31 points.

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<sup>17</sup> This test is based on development concepts, not precise plans (see Figure 2). The test provides only an approximation of the wind effects of cumulative development. Furthermore, this development is extensive enough to alter the wind speed profile structure in the vicinity and require (likely upward) adjustment of the wind speed results. See the discussion under Wind Speed Profile Adjustments, in Section II. As the future cumulative development itself is not the subject of these wind tests, such further adjustments were not made for those tests.





China Basin Landing / 980303

**Figure 2**

Cumulative Development in the Vicinity

SOURCE: Square One Productions, Environmental Science Associates

Wind speeds at the fourteen points (#13, 14, 61-70, 77, 78) on the project site would vary from 5 mph to 16 mph. Along the south side of Berry Street (#14, 61, 62, 63, 64), wind speeds would range from 10 mph to 16 mph, with a reduction of 9 mph at the east end (#14), general reductions in wind speeds over the Berry Street frontage (#62-64) and an increase of nearly 3 mph at the western end (#61). Decreases of 2 mph to 3 mph would occur at the three points (#65-67) in the east half of the space between the Berry Building and the Wharfside Building, with decreases of 10 mph and 5 mph occurring in the western portion (#68) and end of the space (#69). Wind speeds at the five points (#65, 66, 67, 68, 69) between the Berry Building and the Wharfside Building would range from 5 mph to 10 mph and winds at all locations (#65-69) would meet the applicable comfort criterion. This would be two fewer exceedances of the pedestrian comfort criterion and three fewer exceedances of the seating comfort criterion than under project conditions. Along the China Basin Channel, winds would decrease by 4 mph at the east end of the building (#13), would decrease by 2 mph to 3 mph along the building and would decrease by 5 mph at the west end (#70) of the building. The range of wind speeds would then be from 5 mph to 15 mph. Two (#77, 78) of the four locations would meet the seating comfort criterion, while one location (#70) would continue to exceed the pedestrian comfort criterion of the Code, and one location (#13) would meet it.

Wind speeds at the eight locations along Berry Street (#14, 18, 61, 62, 63, 64, 71) would range from 10 mph to 16 mph. The highest of these wind speeds would occur at the west end of the Berry Building, at Fourth Street (#61). Six (#14, 18, 63, 64, 71) of the eight locations would meet the pedestrian comfort criterion, six more than under project conditions.

Along Fourth Street between the China Basin Channel and King Streets, wind speeds would range from 10 mph to 20 mph. The highest wind speed would be 20 mph, at the northeast corner (#79) of Fourth and King Streets; the southwest corner (#75) of the intersection of Fourth and King Streets would have a wind speed of 19 mph. Lower speed winds would occur south on Fourth Street. Two (#69, 71) of these seven locations would meet the pedestrian comfort criterion. This is two more than under project conditions.

Wind speeds range from 5 mph to 17 mph at the fourteen locations along Third Street, from south of the China Basin Channel to Townsend Street. In general, wind speeds along Third Street would be moderate in the open area (#11) south of the Channel, low near the project site and the Lefty O'Doul Bridge, and then increasing across King Street to reach the highest speed at Townsend Street. Wind speeds at seven locations (#12, 13, 14, 18, 22, 23, 65) from the Lefty O'Doul Bridge to King Street would meet the pedestrian comfort criterion. None of the other seven locations along Third Street would meet the pedestrian comfort criterion.

Wind speeds would range from 9 mph to 20 mph at the fifteen points along King Street from Fourth Street to Second Street. In general, wind speeds along King Street would be relatively high (13 mph to 14 mph) west of Fourth Street, highest at the intersection with Fourth Street (20 mph), lower at the intersection with Third Street (9 to 12 mph) and adjacent to the Giants

Ballpark (10 to 12 mph), and then relatively high again east of the ballpark (16 to 18 mph). Four (#22, 23, 38, 39) of these fifteen locations would meet the pedestrian comfort criterion, two more than under project conditions.

Wind speeds would range from 5 mph to 16 mph at the six points (#17, 18, 20, 46, 48, 53) located around the Giants Ballpark. At the three points (#17, 18, 20) on Third Street wind speeds would decrease by 3 mph to 5 mph, to range from 10 mph to 12 mph. At the two (#48, 53) points on the Channel, the wind speeds would increase by 1 mph and decrease by 2 mph to be 10 mph and 11 mph, and at the northeast corner of the Giants Ballpark (#46), the wind speed would decrease by 1 mph to be 16 mph. Four (#17, 18, 48, 53) of the six points meets the pedestrian comfort criterion, three more than under project conditions.

### *Hazard Conditions*

With the project plus cumulative conditions, the wind hazard criterion would be exceeded at four of the 40 locations. The project plus cumulative conditions would eliminate three existing exceedances and three project exceedances, and would create two new exceedances of the hazard criterion.

Two existing exceedances of the hazard criterion would continue to occur; one at the northeast corner of Second and King Streets (#37, 2 hours per year) and one at the northeast corner of Fourth and King Streets (#79, 10 hours per year). The total duration of these two continuing exceedances would be reduced from about 21 hours per year to about 12 hours per year.

Two new exceedances of the hazard criterion would be created at the northwest corner of the Berry Building (#61, 2 hours per year) and at the southwest corner of Third and Townsend Streets, (#27, 2 hours per year). The total duration of these two new exceedances would be about 4 hours per year.

Three existing exceedances of the hazard criterion would be eliminated; on Berry Street at Fourth Street and just west of Fourth Street (#71, 4 hours per year; #72, 5 hours per year) and at the southwest corner of the Wharfside Building (#70, 27 hours per year). Three project exceedances of the hazard criterion would be eliminated; two at the intersection of Third and Berry Streets (#14, 5 hours per year; #18, 1 hour per year) and one on King Street west of Fourth Street (#74, 3 hours per year). The total duration of these eliminated project exceedances would be 36 hours per year.

The total duration of the four exceedances under the project plus cumulative conditions would be 15 hours per year, a reduction of 40 hours per year from the duration under project conditions. See Table 3.



#### IV. SUMMARY

##### *General Conditions and Comfort Criteria*

The existing wind conditions of the project site and vicinity are considered windy; the average wind speed for all 40 test points is nearly 15 mph. Wind speeds in pedestrian areas range from 5 mph to 21 mph. Wind speeds of 14 mph or more occur at 26 locations and wind speeds of 18 mph or more occur at 12 locations. The highest wind speeds in the vicinity (19 to 21 mph) occur west of the project site on Berry Street, King Street and at the southwest corner of the Wharfside Building, on Fourth Street.

Only three of the 40 locations meet the Planning Code's applicable pedestrian comfort or seating comfort criteria values. Wind speeds at three of the 35 pedestrian locations meet the pedestrian comfort criterion value of 11-mph and wind speeds at all 5 seating locations exceed the seating comfort criterion value of 7-mph.

The project would not change overall wind conditions substantially. The project would increase wind speeds at 10 locations, decrease wind speeds at 12 locations, and leave wind speeds unchanged at 18 locations. The average wind speeds would remain nearly 15 mph.

Wind speeds in pedestrian areas would range from 5 mph to 20 mph. Wind speeds of 14 mph or more would occur at 28 locations and wind speeds of 18 mph or more would occur at 11 locations. The highest wind speeds in the vicinity (19 to 20 mph) would continue to occur west of the project site on Berry Street, King Street and at the southwest corner of the Wharfside Building, on Fourth Street.

Six of the 40 locations, three more than under the existing conditions, would meet the Planning Code's applicable wind-comfort criteria. Wind speeds at six of the 35 pedestrian locations would meet the pedestrian comfort criterion; this is three more than under the Existing setting. Wind speeds at the 5 seating locations would not meet the seating comfort criterion; this would be the same as under Existing conditions.

Effects of Cumulative Development Reasonably foreseeable future Cumulative Development includes the Mission Bay North development, with buildings of heights up to 160 feet, on now-vacant lands to the north and west of the project site.

With the addition of this cumulative development, wind speeds in the vicinity of the project would be substantially reduced. Compared to project conditions, wind speeds would increase at eight locations, remain unchanged at one location and decrease at 31 locations.

With the project and cumulative development, wind conditions would be considered windy; the average wind speed for all 40 test points would decrease by about 3 mph, but would

remain above 11 mph. Wind speeds in pedestrian areas would range from 5 mph to 20 mph. Wind speeds of 14 mph or more would occur at 12 locations and wind speeds of 18 mph or more occur at 4 locations. The highest wind speeds in the vicinity (19 to 20 mph) would occur west of the project site on at the intersection of Fourth and King Streets and at the southwest corner of the Townsend and Third Streets.

Twenty-two of the 40 locations would meet the applicable wind comfort criteria. Seventeen of the 35 pedestrian locations, 11 more than under project conditions, would meet the pedestrian comfort criterion, and all 5 seating locations, five more than under project conditions, would meet the seating comfort criterion.

In general, cumulative development would result in general decreases in wind speeds throughout the vicinity of the Project.

Reduced-Development Alternative. The Reduced-project alternative is a design that is two stories shorter than the project design.

Wind conditions with the alternative, would not change substantially from project wind conditions. Under the alternative, wind speeds would increase at six locations, remain unchanged at 10 locations and decrease at 24 locations, as compared to project conditions.

With the reduced-project alternative, wind conditions would be considered windy; the average wind speed for all 40 test points would decrease by about 1 mph compared to the project conditions, remaining near 14 mph. Wind speeds in pedestrian areas would range from 5 mph to 21 mph. Wind speeds of 14 mph or more would occur at 24 locations and wind speeds of 18 mph or more occur at 7 locations. The highest wind speeds in the vicinity (19 to 21 mph) would continue to occur west of the project site on Berry Street, at the intersection of Fourth and King Streets and at the southwest corner of the Wharfside Building.

Eight of the 40 locations, two more than under the project conditions, would meet the Planning Code's applicable wind-comfort criteria. Wind speeds at six of the 35 pedestrian locations would meet the pedestrian comfort criterion; this would be the same as under the project. Wind speeds at two of the five seating locations would meet the seating comfort criterion; this would be two more than under the project.

#### *Wind Hazard Conditions*

The Code's wind hazard criterion is currently exceeded at five of the existing 40 locations. The total duration of the existing exceedances is 56 hours per year.

With the project, the Code's wind hazard criterion would be exceeded at six locations. Four of the existing five exceedances would continue; the project would eliminate one existing

exceedance with a duration of 2 hours per year and reduce the duration of the remaining existing exceedances by about 10 hours per year. In addition, the project would create three new hazard criterion exceedances, with a total duration of 9 hours per year. The total duration of the existing and new exceedances would be 55 hours per year, a decrease of 1 hour per year from the existing duration.

Effects of Cumulative Development. With the project and cumulative development, the Code's wind hazard criterion would be exceeded at four locations. The project plus cumulative conditions would eliminate three existing exceedances and three project exceedances, and would create two new exceedances of the hazard criterion. Two existing exceedances of the hazard criterion would continue to occur; their total duration would be reduced from 21 hours per year to 12 hours per year. Two new exceedances of the hazard criterion would be created at the northwest corner of the Berry Building and at the southwest corner of Third and Townsend Streets. The total duration of these two new exceedances would be 4 hours per year. Three existing exceedances and three project exceedance of the hazard criterion would be eliminated; the total duration of these eliminated project exceedances would be 36 hours per year. The total duration of the four exceedances under the project plus cumulative conditions would be 15 hours per year, a reduction of 40 hours per year from the duration under project conditions.

Reduced-Development Alternative. With the reduced-development alternative, the wind hazard criterion of the Planning Code would be exceeded at six locations. Exceedances of the hazard criterion would continue to occur at four of the same locations as under the project. The total duration of those four existing exceedances would be reduced from 46 hours to 14 hours per year. The alternative would eliminate three project exceedances with a total duration of 9 hours per year, and would create two new exceedances with a total duration of 30 hours per year.

The total duration of the six existing and new exceedances under the alternative would be 44 hours per year, a decrease in duration of about 11 hours per year from the project condition.

#### *Project Mitigation Measures*

Five existing hazard criterion exceedances, 32 pedestrian comfort criterion exceedances and five seating comfort criterion exceedances would occur under the Existing Setting. The project would eliminate three pedestrian comfort criterion exceedances. Five existing seating comfort criterion exceedances would continue. The project would create no new comfort criterion exceedances and it would reduce the total duration of hazard criterion exceedances by 1 hour per year. Given the existing windy conditions of the site and vicinity and the modest changes in wind conditions that can reasonably be expected from the project, it may not be possible to design any structure that fully meets the goals of the project and which fully



reduces ambient wind speeds to meet Section 148 comfort criteria at all locations.

No new pedestrian comfort criterion exceedance or seating comfort criterion exceedance would be caused by the Project, so no mitigation would be required for exceedances of those comfort criteria.

Three additional hazard criterion exceedances would be caused by the project and one existing exceedance would be eliminated. The total hours of duration of all hazard criterion exceedances would be reduced by the project. No feasible mitigation is known that would eliminate the new exceedances of the hazard criterion.



## APPENDIX C. TRANSPORTATION

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### INTERSECTION LEVELS OF SERVICE

Levels of service (LOS) for signalized intersections are described on Table C-1.

### TRANSIT ANALYSIS

Details about the transit analysis approach are presented below, including a discussion of analysis screenlines. Screenlines are hypothetical lines that would be crossed by persons traveling between downtown San Francisco and its vicinity and other parts of the City or the region. Screenlines have been established for local, MUNI service to and from downtown, and for regional transit service to and from San Francisco.

#### MUNI Screenlines

Four screenlines have been established in San Francisco to analyze potential impacts of projects on MUNI service: Northeast, Northwest, Southwest, and Southeast. Each screenline corridor also includes one or more sub-corridors. The main screenlines are illustrated in Figure C-1, San Francisco Transit Screenlines.

The bus and light rail lines used in this screenline analysis are considered the major commute routes from the downtown area. Other bus lines, such as “policy” lines and lines with greater than ten minute headways are not included, due to their generally lower ridership. The MUNI routes by screenline and sub-corridor are as follows:

Northeast:     Kearny/Stockton Corridor (15 inbound, 30, 30X, 45)  
                    All Other Lines (41, 42 and 82X)



**TABLE C-1**  
**SIGNALIZED INTERSECTION LEVEL OF SERVICE DEFINITIONS**  
**(Based on Delay)**

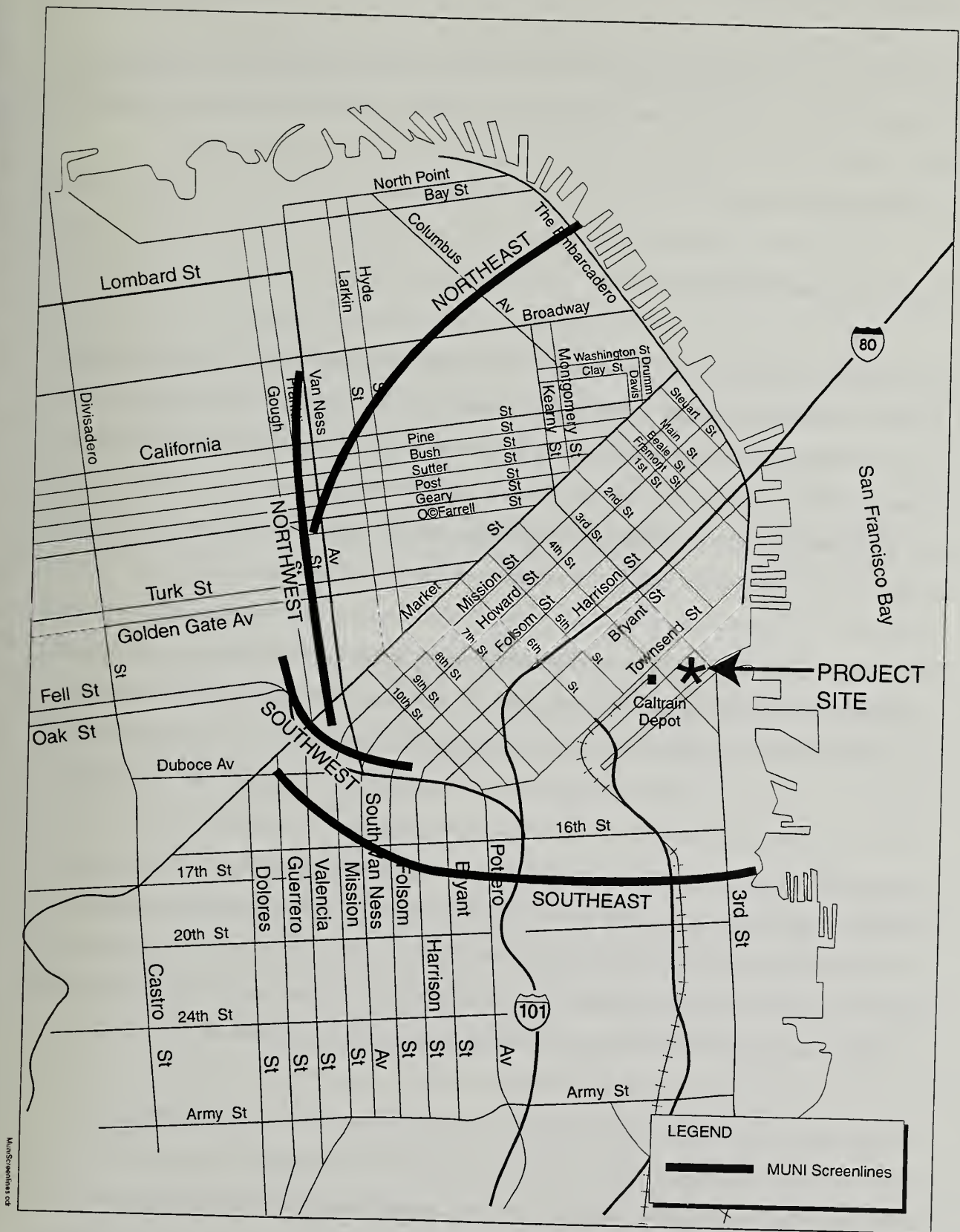
Level of Service	Stopped Delay (sec/veh)	Typical Traffic Condition
A	$\leq 5.0$	<b>Insignificant Delays:</b> Progression is extremely favorable, and most vehicles arrive during the green phase. Most vehicles do not stop at all.
B	5.1 - 15.0	<b>Minimal Delays:</b> Generally good progression, short cycle lengths, or both. More vehicles stop than with LOS A, causing higher levels of average delay. Drivers begin to feel restricted.
C	15.1 - 25.0	<b>Acceptable Delays:</b> Fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear, though many still pass through the intersection without stopping. Most drivers feel somewhat restricted.
D	25.1 - 40.0	<b>Tolerable Delays:</b> The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high v/c ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable. Queues may develop but dissipate rapidly, without excessive delays.
E	40.1 - 60.0	<b>Significant Delays:</b> Considered by many agencies to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are frequent occurrences. Vehicles may wait through several signal cycles and long queues of vehicles form upstream.
F	$> 60.0$	<b>Excessive Delays:</b> Considered to be unacceptable to most drivers. Often occurs with oversaturation, that is, when arrival flow rates exceed the capacity of the intersection. Poor progression and long cycle lengths may also be major contributing causes to such delay levels. Queues may block upstream intersections.

*Sources:* Highway Capacity Manual, Special Report No. 209, Third Edition, Transportation Research Board, Washington, D.C. 1985 (Updated 1994); Korve Engineering, Inc.

Northwest: Geary Corridor (38, 38L, 38AX and 38BX)  
All Other Lines (1,1AX,1BX,2,3,4, 5, 21, 30, 31, 31AX, 31BX,45)

Southwest: Subway Lines (K, L, M and N)  
All Other Lines (6, 7, 71 and F)

Southeast: Third Street Corridor (15 outbound)  
Mission Street Corridor (14 and 14X)  
All Other Lines (9, 9AX, 9BX and J)



CHINA BASIN LANDING EXPANSION PROJECT: EIR

FIGURE C-1: SAN FRANCISCO TRANSIT SCREENLINES

The points of measurement for the screenline analysis reflect the Maximum Load Point (MLP) for each MUNI line which crosses one of the screenlines. The MLP for each individual line may occur at some point of either side of the schematic lines drawn for graphical representation.

### **Regional Transit Service**

The Alameda-Contra Costa Transit District (AC Transit) is the primary bus operator for the East Bay, including Alameda and western Contra Costa Counties. AC Transit operates 37 routes between the East Bay and San Francisco, terminating at the Transbay Terminal. Most transbay service is peak hour and peak direction (to San Francisco during the AM peak period and from San Francisco during the p.m. peak period), with headways of 15 to 30 minutes per route.

The Bay Area Rapid Transit District (BART) operates heavy rail passenger service in the metropolitan Bay Area. BART currently operates five lines: Pittsburg/Bay Point to Colma, Fremont to Daly City, Richmond to Colma, Fremont to Richmond, and Dublin/Pleasanton to Daly City. In downtown San Francisco, BART operates under Market Street. During the evening, headways are generally 5 to 15 minutes for each line. The BART stations nearest to the proposed project are the Montgomery Street and Powell Street stations, located 1 to 1.5 miles northwest of the proposed project. BART stations along Market Street can also be accessed via the MUNI Metro N-Judah line, which also operates under Market Street. An extension is currently being constructed to the San Francisco International Airport and the City of Milbrae, which are expected to be opened in 2000 and 2001, respectively.

The Peninsula Commute Service (Caltrain) provides rail passenger service between San Francisco and the Peninsula. This service is operated by the Peninsula Corridor Joint Powers Board, a joint powers agency consisting of San Francisco, San Mateo and Santa Clara Counties. Caltrain currently operates 66 trains (33 in each direction) each weekday, with a combination of express and local service. Headways during the peak periods range between 5



and 30 minutes. The Caltrain terminal is located immediately to the north of the proposed project, at the southwest corner of Fourth and Townsend Streets.

The San Mateo County Transit District (SamTrans) provides bus service between San Mateo County and San Francisco. SamTrans operates 12 bus lines which serve San Francisco, including eight routes into the downtown area. Nine of these routes operate as peak-only commute routes, one route operates as an express route, and two routes provide service throughout the day. SamTrans does not operate local service in the vicinity of the proposed project. All downtown SamTrans routes serve the Transbay Terminal, accessible to China Basin Landing employees and patrons via the China Basin Landing shuttle service.

Golden Gate Transit, operated by the Golden Gate Bridge, Highway, and Transportation District (GGBHTD), provides bus service between the North Bay (Marin and Sonoma Counties) and San Francisco. Golden Gate Transit runs 22 commute bus routes, nine basic routes and 16 ferry feeder bus routes. Most routes serve either the Van Ness corridor of the Financial District, and six routes serve the Transbay Terminal. The China Basin Landing shuttle provides service to Market Street near the Transbay Terminal, connecting patrons with Golden Gate Transit Lines.

Golden Gate Transit also operates ferry services between the North Bay and San Francisco. During the morning and evening commute periods, ferries are operated between Larkspur and San Francisco and between Sausalito and San Francisco. The San Francisco terminal is located at the Ferry Building, near Market Street and The Embarcadero. In addition, the Blue & Gold fleet operates ferry service between San Francisco and Alameda/Oakland, Vallejo, Sausalito, Tiburon and Angel Island. Service is provided from the Ferry Building and Pier 39 at Fisherman's Wharf.

The location of the regional screenlines and the transit providers that cross each screenline are as follows:

East Bay: San Francisco Bay, including the Bay Bridge  
(AC Transit, BART, ferries)

North Bay: San Francisco Bay, including the Golden Gate Bridge  
(Golden Gate transit buses and ferries)

South Bay: San Francisco-San Mateo county line  
(BART, Caltrain, SamTrans)

#### LEVEL OF SERVICE A

Pedestrian Space:  $\geq 130$  sq ft/ped Flow Rate:  $\leq 2$  ped/min/ft

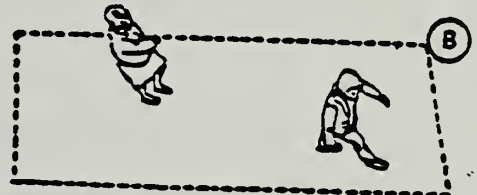
At walkway LOS A, pedestrians basically move in desired paths without altering their movements in response to other pedestrians. Walking speeds are freely selected, and conflicts between pedestrians are unlikely.



#### LEVEL OF SERVICE B

Pedestrian Space:  $\geq 40$  sq ft/ped Flow Rate:  $\leq 7$  ped/min/ft

At LOS B, sufficient area is provided to allow pedestrians to freely select walking speeds, to bypass other pedestrians, and to avoid crossing conflicts with others. At this level, pedestrians begin to be aware of other pedestrians, and to respond to their presence in the selection of walking path.



#### LEVEL OF SERVICE C

Pedestrian Space:  $\geq 24$  sq ft/ped Flow Rate:  $\leq 10$  ped/min/ft

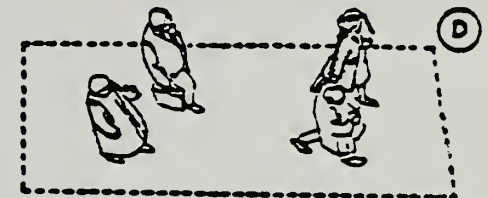
At LOS C, sufficient space is available to select normal walking speeds, and to bypass other pedestrians in primarily unidirectional streams. Where reverse-direction or crossing movements exist, minor conflicts will occur, and speeds and volume will be somewhat lower.



#### LEVEL OF SERVICE D

Pedestrian Space:  $\geq 15$  sq ft/ped Flow Rate:  $\leq 15$  ped/min/ft

At LOS D, freedom to select individual walking speed and to bypass other pedestrians is restricted. Where crossing or reverse-flow movements exist, the probability of conflict is high, and its avoidance requires frequent changes in speed and position. The LOS provides reasonably fluid flow; however, considerable friction and interaction between pedestrians is likely to occur.



#### LEVEL OF SERVICE E

Pedestrian Space:  $\geq 6$  sq ft/ped Flow Rate:  $\leq 25$  ped/min/ft

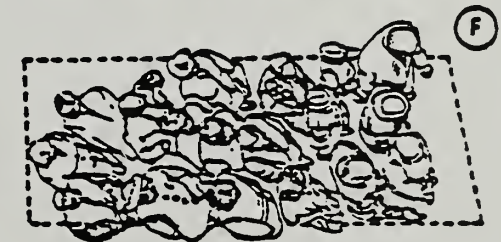
At LOS E, virtually all pedestrians would have their normal walking speed restricted, requiring frequent adjustment of gait. At the lower range of this LOS, forward movement is possible only by "shuffling." Insufficient space is provided for passing of slower pedestrians. Cross- or reverse-flow movements are possible only with extreme difficulties. Design volumes approach the limit of walkway capacity, with resulting stoppages and interruptions to flow.



#### LEVEL OF SERVICE F

Pedestrian Space:  $\leq 6$  sq ft/ped Flow Rate: variable

At LOS F, all walking speeds are severely restricted, and forward progress is made only by "shuffling." There is frequent, unavoidable contact with other pedestrians. Cross- and reverse-flow movements are virtually impossible. Flow is sporadic and unstable. Space is more characteristic of queued pedestrians than of moving pedestrian streams.



SOURCE: Highway Capacity Manual, Special Report 209, Third Edition, Chapter 13, TRB 1994

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FIGURE C-2: WALKWAY LEVELS OF SERVICE





## APPENDIX D. AIR QUALITY

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This appendix describes air pollutants, summarizes their health effects, and shows the applicable ambient air quality standards.

*Criteria air pollutants* refer to a group of pollutants for which regulatory agencies have adopted federal, state, or regional ambient air quality standards and pollution reduction plans. Criteria air pollutants include ozone, carbon monoxide (CO), nitrogen dioxide (NO<sub>2</sub>), sulfur dioxide (SO<sub>2</sub>), particulate matter, and lead. Reactive organic gases (ROG) and oxides of nitrogen (NO<sub>x</sub>) are also regulated as precursor contaminants that react under certain atmospheric circumstances to form ozone.

Table D.1 shows the potential human health effects of the criteria air pollutants, and Table D.2 shows the federal and state ambient air quality standards for these pollutants.

**TABLE D.1**  
**HEALTH EFFECTS SUMMARY OF THE MAJOR CRITERIA AIR POLLUTANTS**

Air Pollutant	Adverse Effects
Ozone	Eye irritation. Respiratory function impairment.
Carbon Monoxide	Impairment of oxygen transport in the bloodstream, increase of carboxyhemoglobin. Aggravation of cardiovascular disease. Impairment of central nervous system function. Fatigue, headache, confusion and dizziness. Can be fatal in the case of very high concentrations in enclosed places.
Nitrogen Dioxide	Risk of acute and chronic respiratory illness.
Sulfur Dioxide	Aggravation of chronic obstruction lung disease. Increased risk of acute and chronic respiratory illness.
Particulate Matter (PM <sub>10</sub> )	Increased risk of chronic respiratory illness with long exposure. Altered lung function in children. With SO <sub>2</sub> , may produce acute illness. May be inhaled and possibly lodge in and/or irritate the lungs.
Fine Particulate Matter (PM <sub>2.5</sub> )	May be inhaled and possibly lodge in and/or irritate the lungs.
Lead (Pb)	Prolonged exposure may cause anemia, kidney disease, and in severe cases, neuromuscular disorder and neurologic dysfunction.

*Source:* Bay Area Air Quality Management District Air Quality Handbook, 1993; Zannetti, Paolo, *Air Pollution Modeling*, 1990.



**TABLE D.2**  
**FEDERAL AND STATE AIR QUALITY STANDARDS**

Pollutant	Averaging Time	California Standard/a/	Federal Standard/b/
Ozone	1-hour	0.09 ppm	0.12 ppm
	8-hour	—	0.08 ppm
Carbon Monoxide	1-hour	20.00 ppm	35.00 ppm
	8-hour	9.00 ppm	9.00 ppm
Nitrogen Dioxide	1-hour	0.25 ppm	—
	Annual Average	—	0.053 ppm
Sulfur Dioxide	1-hour	0.25 ppm	—
	3-hour	—	0.5 ppm
	24-hour	0.04 ppm	0.14 ppm
	Annual Average	—	0.03 ppm
Particulate Matter (PM <sub>10</sub> )	24-hour	50 µg/m <sup>3</sup>	150 µg/m <sup>3</sup>
	Annual Geometric Mean	30 µg/m <sup>3</sup>	—
	Annual Arithmetic Mean	—	50 µg/m <sup>3</sup>
Fine Particulate Matter (PM <sub>2.5</sub> )	24-hour	—	65 µg/m <sup>3</sup>
	Annual Arithmetic Mean	—	15 µg/m <sup>3</sup>
Lead (Pb)	30-day Average	1.5 µg/m <sup>3</sup>	—
	Calendar Quarter	—	1.5 µg/m <sup>3</sup>

*Notes:*

ppm = parts per million by volume

µg/m<sup>3</sup> = micrograms per cubic meter

— = No standard exists for this category

- a. California standards for ozone, carbon monoxide, sulfur dioxide, nitrogen dioxide, and particulate matter (PM<sub>10</sub>) are values that are not to be exceeded.
- b. The form of the federal standards (i.e., the statistical method of how the standard is applied to real-world data) varies from pollutant to pollutant. For further information, 40 CFR Part 50 includes the relevant form for each federal standard.

*Source:* EIP Associates.



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